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U.S. Department of the Interior

Bureau of Land Management
Rawlins Field Office

Office of Surface Mining
Reclamation and Enforcement

January 1999

FINAL
Carbon Basin Coal Project Environmental Impact Statement

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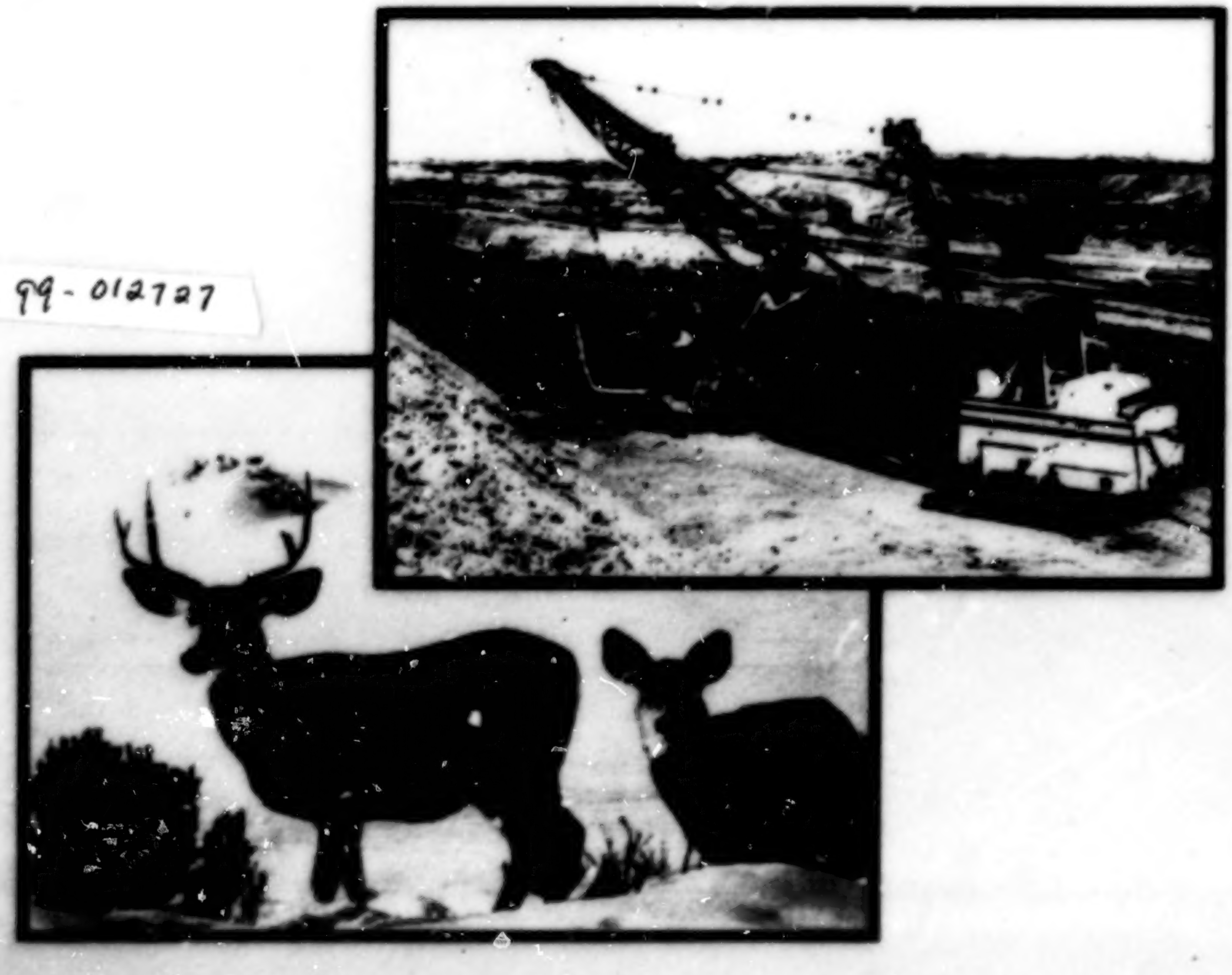

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FINAL

CARBON BASIN COAL PROJECT
ENVIRONMENTAL IMPACT STATEMENT, CARBON COUNTY, WYOMING

Prepared for

U.S. Bureau of Land Management
Rawlins Field Office
Rawlins, Wyoming

and

U.S. Office of Surface Mining
Reclamation and Enforcement
Region V
Denver, Colorado

By

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Laramie, Wyoming
MAI Project 20241-01

January 1999

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CARBON BASIN COAL PROJECT CARBON COUNTY, WYOMING

( ) Draft (X) Final

U.S. Department of the Interior
Bureau of Land Management

Abstract:

The Draft and Final Environmental Impact Statements (DEIS and FEIS) assess the environmental consequences of a proposed coal lease sale and subsequent mine development and operation in the Carbon Basin, 11 miles southeast of Hanna, Wyoming. This abbreviated FEIS revises and supplements the DEIS for the Carbon Basin Coal project (DES-98-32) and addresses comments and concerns expressed during the public comment period for the DEIS. The DEIS was made available to the U.S. Environmental Protection Agency (EPA) and the public on August 7, 1998, and a Notice of Availability was published in the Federal Register on the same date. One public hearing was held in Hanna on September 9, 1998. The comment period closed October 6, 1998.

Public and agency comments on Chapters 2.0-4.0, 6.0, and 7.0 and Appendices A and B of the DEIS are incorporated into this document as errata. Table 2.18a was created to supplement Table 2.18 in the DEIS to show cumulative project impacts relative to baseline conditions in the Carbon Basin Coal Project Area (CBCPA). All comments received during the comment period and at the public hearing are reproduced in Chapter 8.0 and Bureau of Land Management (BLM) responses are presented.

The proposed project would involve development of a surface and an underground coal mine in the Carbon Basin. Surface mining would be conducted using a dragline and truck and shovel procedures. Arch of Wyoming would use an Archveyor™, a patented surface mining machine, to mine deeper deposits of surface-minable coal. Once the surface mine highwalls have been established, underground mine development would commence. Surface mine development would commence in 1999 and production would end in 2007.

Power to the mine would be supplied via a 115-kV power line. Arch has proposed to haul coal from the CBCPA north on Highway 72 to the existing Seminoe II loadout for the first 6 years of mining, after which all coal would be hauled by rail. In response to public concern about hauling coal on Highway 72, BLM developed 10 coal transportation alternatives which were analyzed in the DEIS.

Pursuant to a cooperative agreement between the Secretary of the Interior and the Wyoming Department of Environmental Quality (WDEQ), a federal coal lease holder in Wyoming must submit a permit application package to the Office of Surface Mining (OSM) for any proposed coal mining and reclamation operation on lands within the state. As part of the permitting process, a new mine and reclamation plan would be developed to show how lands in the area would be mined and reclaimed. Specific impacts that would occur during mining would be addressed in the mine permit, and specific mitigation measures for anticipated impacts also would be identified at that time.

Potentially significant impacts from the proposed project include bypass of unrecoverable or unleased coal; permanent loss of the coal resource that is mined and combusted; loss of pronghorn and mule deer crucial winter range; potential for avian mortality due to collisions or electrocutions; loss of sage grouse breeding, nesting, and wintering habitat; potential degradation of Highway 72; loss of visual quality to nearby residents and recreational/ranching users; and decreased property values for nearby residents. Significant beneficial impacts would include maintained or increased employment, increased tax revenue and royalties, and stimulation of the local economy.

Comments on this FEIS should be directed to:

Kurt Kotter
Rawlins Field Office
Bureau of Land Management
1300 North Third Street
Rawlins, WY 82301

For further information, contact Brenda Vosika-Neuman or John Spehar at the Rawlins Field Office, (307) 328-4200.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Wyoming State Office
P.O. Box 1828
Cheyenne, Wyoming 82003-1828

In Reply Refer To:

1793 (930)
3420
WYW139975
Elk Mountain/
Saddleback Hills

DEC 2 3 1998

Dear Reader:

This Final Environmental Impact Statement (FEIS) has been prepared pursuant to 40 CFR 1500 - 1508 for the Elk Mountain/Saddleback Hills Coal Lease Application WYW139975 located in Carbon County, Wyoming. This copy of the FEIS is provided for your review. It is not a decision document. Its purpose is to inform you of the impacts of leasing and mining the Federal coal proposed for leasing and to evaluate alternatives to the proposal.

The Draft Environmental Impact Statement (DEIS) was mailed to the public in July 1998 and the formal comment period ended on October 6, 1998. All comments received during the preparation of the FEIS were considered. A formal public hearing on the proposed Elk Mountain/Saddleback Hills coal lease application was held at 7 p.m. on September 9, 1998, at the Town of Hanna Administrative Office, 301 S. Adams, Hanna, Wyoming. The purpose of the hearing was to receive comments on the proposed coal lease sale, on the fair market value and maximum economic recovery of the Federal coal resources in the proposed lease tract, and on the DEIS. A transcript of the hearing proceedings has been reproduced in this FEIS. An open house was held prior to the hearing from 6 p.m. to 7 p.m., September 9, 1998, to answer questions regarding the coal lease-by-application process and this coal lease application.

Thirteen comment letters were received on the DEIS. The FEIS considers these comments, which are included along with BLM's responses, in Chapter 8 of the FEIS.

The public may submit comments on the FEIS for a period of 30 days from the date the Environmental Protection Agency (EPA) publishes their Notice of Availability (NOA) of the FEIS in the Federal Register. We anticipate that EPA will publish their NOA on January 8, 1999. In addition to comments received on the FEIS, the BLM will also consider comments on the issues of fair market value and maximum economic recovery of coal in the proposed lease tract. Please address written comments to Field Manager, Rawlins Field Office, P.O. Box 2407, 1300 North Third Street, Rawlins, Wyoming 82301.

If you have any questions, or require additional information, please contact either John Spehar, Environmental Coordinator, at 307-328-4264 or Brenda Vosika Neuman, Team Leader, at 307-328-4389.

Sincerely,

Alan R. Pierson
State Director

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PREFACE

The Draft Environmental Impact Statement (DEIS) for the Carbon Basin Coal Project was released for public review on August 7, 1998. The Notice of Availability was published by the Bureau of Land Management (BLM) in the Federal Register on the same date. A 60-day comment period, closing on October 6, 1998, was provided. One public hearing was held in Hanna, Wyoming, on September 9, 1998. Comments received through November 10, 1998, were considered in this Final Environmental Impact Statement (FEIS).

A total of 13 comment letters was received. One letter, from the Rawlins-Carbon County Chamber of Commerce, supported the project. One letter, from the Carbon County Planning Commission, requested an extension of the public comment period, which was not granted (see Response to Comment C1 in Chapter 8.0 of this FEIS). The remaining letters requested more information or more analysis.

This abbreviated FEIS revises and supplements the DEIS for this project. Public and agency comments on DEIS Chapters 2.0 through 4.0, 6.0, and 7.0, and Appendices A and B are incorporated into this document as errata. No revisions were made to Chapter 1.0. The DEIS will be required to accompany this FEIS because only the modifications, corrections, and additions are provided in the following material (with the exceptions of the Executive Summary and Chapter 8.0). Section 5.4, Applicant-committed Practices, was added because Arch has committed to implementing certain practices, above-and-beyond those described in Chapter 5.0 in the DEIS. All comments received during the public comment period, including letters and verbal comments taken at the public hearing, are reproduced in Chapter 8.0 in this FEIS, and BLM responses are presented.

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EXECUTIVE SUMMARY

Ark Land Company (Ark), St. Louis, Missouri, has filed a lease-by-application (LBA) with the U.S. Bureau of Land Management (BLM), Wyoming State Office, to obtain a federal coal lease (WYW 139975) pursuant to provisions found at 43 Code of Federal Regulations (CFR) 3425.1. The proposed lease area is located in the Carbon Basin, Wyoming (see Figures 1.1 and 1.2 in the DEIS), within the BLM's Great Divide Resource Area (GDRA) approximately 3 miles (mi) north and northeast of Elk Mountain and 10 mi southeast of Hanna, Wyoming, on a mixture of federal, state, and private surface ownership; coal ownership is also mixed. Ark owns some of the surface and has obtained rights from other surface owners to access state and private land.

The Carbon Basin Coal Project Area (CBCPA) encompasses 18,360 acres. The CBCPA boundary encompasses the area for which Arch of Wyoming, LLC (Arch), an affiliate of Ark, will apply for permits to mine from the State of Wyoming and was determined by Arch based on surface landownership patterns and coal distribution. The LBA area (see Figure 1.2 in the DEIS) encompasses 5,235.15 acres of federal mineral estate located in 11 discontinuous parcels interspersed through private and state lands and contains approximately 149.7 million tons of federal coal. The estimate of coal resources is based on the information provided by the applicant. BLM will independently evaluate the volume of coal reserves included in the tract as part of the fair market price determination process. This reserve estimate will be included in the sale notice if the tract is offered for sale.

The federal coal, which makes up approximately 39% of the total estimated reserve (see Table 1.1 in the DEIS), would be combined with state and private holdings to develop a feasible mining unit. If BLM decides not to lease the federal coal on these 5,235.15 acres to Ark, the private and state holdings would likely be surface-mined, and the federal surface-minable coal would be bypassed. If not mined at this time, it is unlikely that federal surface-minable coal would be leased or mined in the future because the federal coal lands are too discontinuous to form a feasible mining unit. Furthermore, if the federal coal is not leased, underground mining of private and state coal would not be economically feasible at this time. The federal underground-minable coal could be leased at a later date and mined in conjunction with private and state underground-minable coal, so not leasing the underground-minable coal at this time would not preclude its future recovery.

The LBA process is, by law, an open, public, competitive, sealed-bid process whereupon the coal lease is granted to the highest bidder. Although a company other than Ark could possibly be granted a lease, the analysis presented in this environmental impact statement (EIS) is based on the assumption that Ark, as the owner of much of the surrounding coal, would be the successful bidder and Arch, an affiliate of Ark, would mine the coal. Both Ark and Arch are owned by Arch Coal, Inc. In the unlikely event that another company is the qualified bidder on the LBA tract, the lease would not be issued until additional environmental analysis is completed.

To process an LBA, BLM must evaluate the quantity, quality, maximum economic recovery, and fair market value of the federal coal and fulfill the requirements of the *National Environmental Policy Act of 1969* (NEPA). This EIS is intended to provide both the public and agency decision-makers with a complete and objective evaluation of impacts likely to result from the Proposed Action (the leasing of 5,235.15 acres) and its reasonable alternatives and was prepared in compliance with the NEPA and applicable regulations and laws passed subsequent to NEPA, including Council on Environmental Quality (CEQ) regulations (40 CFR, Part 1500-1508); U.S. Department of the Interior (USDI) guidelines in *Departmental Manual 516, Environmental Quality* (USDI 1980); guidelines listed in the BLM *NEPA Handbook*, *H-1790-1* (BLM 1988); BLM's desktop reference *Overview of BLM's NEPA Process* (BLM 1996); and *BLM Guidelines for Analyzing and Documenting Cumulative Impacts* (BLM 1994a).

The federal government maintains a policy to encourage private industry in the economically sound and orderly development and mining of domestic reserves, and the Secretary of the Interior has responsibility to carry out this policy. Since the passage of the *Mineral Leasing Act of 1920*, as amended (MLA), the USDI, through its implementing agency the BLM, has been charged with administering a leasing program that would allow the private sector to mine federally owned coal reserves. Furthermore, pursuant to the *Mining and Minerals Policy Act of 1970*, "it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in 1) the development of economically sound and stable domestic mining, minerals ... industries, 2) the orderly and economic development of domestic mineral resources, reserves ... to help assure satisfaction of industrial, security, and environmental needs."

Ark proposes to obtain a federal coal lease on 5,235.15 acres for surface- and underground-minable coal, which would grant Ark the exclusive right to obtain mining permits for, and to mine, coal on the leased tract (see Figure 1.2 in the DEIS). Arch would develop and operate two mines: the Elk Mountain Mine for surface-minable coal and the Saddleback Hills Mine for underground-minable coal. Mining operations would be subject to the terms of the lease, the mine permits (two state permits would be required--one each for the surface and underground mines), federal mining plan approval, and other applicable state and federal laws and regulations. Arch presently operates two surface coal mines (Medicine Bow and Seminoe II) in the vicinity of Hanna, and issuance of the new coal lease in the Carbon Basin would enable Arch to extend the life of mining operations in the area by 20 years and to continue supplying coal to existing customers, as well as to develop new contracts. Ark currently has 93,700,000 tons of coal leased at the Seminoe II and Medicine Bow Mines in the Hanna Basin north of the CBCPA (see Figure 4.1), 70,000,000 tons of which have been mined. Current reserves are estimated at 23,700,000 tons, 3,100,000 tons of which are economically recoverable reserves and will be depleted by 2000 at current production rates. Without supplemental reserves, no additional coal will be available for Arch to meet electric utility demands for low-sulfur coal to provide the U.S. with electrical power and to comply with the *Clean Air Act* and amendments.

The primary federal action associated with the Proposed Action would be to hold a lease sale for the 5,235.15 acres of federal coal lands in the project area. For the purposes of this EIS, 10 transportation options (e.g., over-the-highway haulage, railroad, new haul road haulage, conveyor) were developed to transport coal from the CBCPA north to the Union Pacific Railroad mainline (see Figures 2.4-2.8 and Table 2.11 in the DEIS). Access to federal land for the construction, operation, and reclamation of any of the transportation corridors would be authorized by BLM through the issuance of rights-of-way (ROWs), an action that would also require NEPA analysis. The environmental consequences of constructing, operating, and reclaiming each of the transportation options are evaluated in this EIS, such that, if Arch applies for a ROW grant that is analyzed herein, BLM may issue the ROW grant using an Administrative Determination that references this EIS for NEPA compliance. If Arch's application differs to a degree that is not deemed to have been adequately treated in this EIS, BLM may opt to supplement the EIS prior to making a decision on whether or not to issue the ROW. The Record of Decision for this project will include a decision on whether or not to lease the LBA tract as described for the Proposed Action, a decision on all stipulations to be added to any coal lease, and a list of transportation options that BLM deems acceptable for ROW grant issuance. These transportation options would then be evaluated by Arch and Wyoming

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Department of Environmental Quality (WDEQ) during the permitting process. If BLM determines that one or more of the options are environmentally unacceptable, the unacceptable options will be stricken from the Proposed Action as described in the Record of Decision and these options would not be available to Arch. The analysis assumes that BLM would grant the necessary ROWs. If federal coal is not leased, BLM would grant the ROWs needed to facilitate mining the privately owned coal.

The public will be able to comment on the transportation options during review of the DEIS and FEIS, during development of the mine permit (WDEQ has built-in public comment periods), and when BLM issues any ROWs. Therefore, as Arch finalizes plans for mine development, there will be several opportunities for public comment on the proposed coal transportation plan. If a completely new transportation plan is developed and a BLM ROW is required, additional NEPA documentation will be required and will include public involvement pursuant to NEPA.

The leasing of federal coal is an integral part of the BLM Federal Coal Management Program of 1979 under authority of the MLA, the *Federal Land Policy and Management Act of 1976* (FLPMA), and *Federal Coal Leasing Amendments Act* (FCLAA). FCLAA requires that lands considered for leasing be included in a comprehensive land use plan. In 1982, a federal coal lease was issued for approximately 60% of the federal coal lands located in the Carbon Basin. Because that lease was still in effect at the time the Resource Management Plan (RMP) was prepared (BLM 1990), it was exempt from the coal screening/planning requirements, and therefore, there was no coal planning decision for federal coal lands in the Carbon Basin area included in the RMP. This lease was never developed and expired in 1992. Therefore, when Ark submitted their coal lease application, the application was not in conformance with the existing land use plan. An RMP review was conducted by BLM in 1997/98 (*Environmental Assessment* [EA] *for Coal Planning Decisions in the Carbon Basin Area of the Great Divide Resource Area* [Planning Review EA]) (BLM 1997a), and the decision was made to designate the area as acceptable for further consideration for coal leasing and development. The Federal Coal Management Program of 1979 established four major steps--referred to as the coal screening process--to be used in the identification of federal coal areas acceptable for coal development. The process includes:

- identification of coal development potential, including coal resource information (43 CFR 3420.1-2);
- application of the coal unsuitability criteria (43 CFR 3461);
- multiple use conflict evaluation (43 CFR 3420.1-4(e)(3); and
- surface owner consultation.

Only those federal coal lands found acceptable for coal development by the screening process are given further consideration for leasing.

During the RMP planning review and preparation of the EA described above, these four steps were applied to lands that include the proposed project area. These lands were found acceptable, and the RMP was amended to identify those areas in the Carbon Basin as open to consideration for coal leasing and development. The proposed lease area represents 35% of the leasable area in the Carbon Basin. Details of the screening process and results are included in the Planning Review EA (BLM 1997a).

Key issues and concerns identified by the public, BLM, and other governmental organizations regarding the proposed project and analyzed in this EIS include the following:

- analysis of alternative coal-hauling routes and methods;
- conformance with GDRA RMP;
- cumulative impacts;
- public safety and travel/transportation management;
- road maintenance;
- social and economic effects on local communities;
- revenue generation and job availability;
- surface and groundwater impacts;

- direct and indirect wildlife habitat loss;
- big game winter range and migrations;
- threatened, endangered, candidate, and state sensitive species and their habitats;
- noise impacts on residents;
- protection of cultural resources and Native American spiritual values and compliance with applicable laws and Executive Orders;
- air quality impacts;
- effects of the No Action Alternative; and
- impacts to Medicine Bow River and Seminoe Reservoir.

Other issues and concerns identified during the scoping process and analyzed in this EIS include:

- visual resources and aesthetics;
- noxious weed control;
- highly erodible and unstable soils;
- wetlands, wetland functions and values, waters of the U.S., riparian areas, and alluvial valley floors;
- paleontological resources;
- conformance with current and future land uses;
- impacts to existing pipelines;
- increased traffic on roads and increased human activity in the lease area;
- potential for underground mining;
- impacts to existing water rights;
- impacts to other mineral resources (including oil and gas) and conflicts with other mineral development proposals;
- construction of electric transmission facilities;
- reclamation standards and procedures;
- disclosure of any and all of the applicant's violations of federal environmental laws;
- damage to other vehicles using haul route;
- mining method and mining plan;
- adequacy of data used in coal screening process;
- monitoring of impacts;
- mine subsidence;
- impacts on recreational opportunities;
- access to underground coal reserves;
- integration of coal screening process with environmental analysis;
- energy requirements and conservation potential of alternatives; and
- global warming.

The detailed environmental analysis for the proposed lease sale includes an assessment of a No Action Alternative and the Proposed Action, which includes 10 transportation options. The analysis in this EIS assumes that, because 79% of the surface-minable coal within the CBCPA is privately owned, it is highly probable that this coal would be mined even if the federal coal is not leased. Therefore, the No Action Alternative is a "no federal leasing" action rather than a "no mining" action. Surface-mining the federal coal in addition to the private coal would result in incremental increases in environmental consequences. Under the No Action Alternative, underground mining would not be feasible because the privately owned tract is discontinuous (i.e., in a checkerboard mineral ownership pattern) and thus not leasing the federal coal would make the privately owned underground coal uneconomical to mine. BLM would authorize the ROWs needed to facilitate surface mining of the privately owned coal. Because BLM does not have authority over private lands or private coal, this EIS does not analyze a No Action-No Mining Alternative.

The No Action Alternative also would result in increased effects, over-and-above the effects caused by other existing and proposed developments. The CBCPA and surrounding region are being managed for a variety of uses including livestock grazing, wildlife habitat, windpower development, oil and gas development, municipalities, transportation, transmission (e.g., pipelines and power lines), residential areas, etc., all of which contribute to the existing baseline described in Chapter 3.0 of this EIS. Impacts associated with the additive effects of mining to the existing baseline (which includes lands and other resources that have been impacted by current management) are evaluated in Chapter 4.0, in the discussion of cumulative impacts for each resource and summarized in Table 2.18a in this FEIS.

Under the Proposed Action, BLM would hold a competitive lease sale for surface- and underground-minable federal coal lands. Ark's initial LBA application of September 20, 1996, was modified by BLM on May 15, 1998, to include certain blocks of federal coal not originally applied for and exclude certain blocks based on results of the coal screening process. Ark subsequently revised their application to include BLM's May 15 modification. BLM may opt to hold the lease sale for surface- and underground-minable coal concurrently or to hold two sales, first for the surface-minable coal and later for the underground-minable coal such that surface mining could be initiated while the BLM's geologic and economic evaluation of the underground reserves is completed. Analysis of the Proposed Action, therefore, includes both leasing options and both the surface (Elk Mountain) and underground (Saddleback Hills) mines.

The EIS analyzes a No Action Alternative project disturbance area of 3,270 acres (see Table 2.2 in the DEIS). The Proposed Action (i.e., holding the lease sale) would add up to 1,626 acres of additional disturbance for a total of up to 4,896 acres (up to 50% more disturbance than for the No Action Alternative).

Arch currently provides coal to several local customers located in Laramie, Torrington, and Rawlins, as well as to customers throughout the U.S. Coal for local customers (150,000 tons in 1997) is currently hauled via over-the-road haul trucks directly from the Hanna Basin mines. Development of the new mines would allow these shipments to continue, probably at current levels.

Under the No Action Alternative, mine development would begin in 1999. Surface mining would begin in 2000 and end in 2007. The dates given in this analysis are the current estimates of when mining would occur, but the actual dates would depend on the date of mine permit approval. Final reclamation would be completed in 2012; thus the life-of-mine (LOM) would be 13 years. The bonding period would end in 2022, 10 years after final reclamation.

Power to the mine would be supplied via a 115-kV power line from one of two possible connections (see Figure 2.1 in the DEIS): 1) Western Area Power Administration's substation near Medicine Bow or 2) PacifiCorp's 230-kV transmission line (currently being constructed to convey power from SeaWest Energy Corporation's windpower generating facility) (BLM 1995a, 1995b, 1997b).

Surface mine (see Figure 2.2 in the DEIS) development would include: facilities construction; erection of a dragline and an Archveyor™ (a patented continuous mining machine and conveyor used to access deep but surface-minable coal more efficiently than with surface or underground mining methods) (see Figure 2.3 in the DEIS); topsoil salvage; drilling, blasting, and removal of overburden; coal removal and transport; and reclamation. On-site facilities would include: an office complex including administrative offices, changing and lunch rooms, sanitary facilities, and a service building; an equipment-ready area; a maintenance shop; a water pump house; a fuel station; a storage yard; a coal transfer station; a parking lot; a solid waste landfill; the 115-kV power line; substations; and an explosives storage area.

Portions of County Road 215 (see Figure 2.1 in the DEIS) would be upgraded to haul road standards and used to access Highway 72. Access to various support facilities (substations, power line, drill sites, monitoring wells, etc.) would be via WDEQ-approved roads within the CBCPA which would be relocated periodically during the LOM. Roads that are no longer needed for mine operations would be reclaimed during interim reclamation.

Arch has proposed to haul coal from the CBCPA north on Highway 72 to the existing Seminoe II loadout (see Figure 2.1 in the DEIS) where it would be loaded onto trains. During scoping, BLM received many comments concerning the safety hazard presented by hauling coal (up to 436 trips/day) through the town of Hanna. In response to these concerns, Arch; the WDEQ, Abandoned Mine Lands Program (AML);

Wyoming Department of Transportation; and Carbon County have initiated plans to construct a two-lane bridge and a 2-mi long road on private land east of Hanna between Highway 30/287 and the end of Highway 72 at Elmo (herein referred to as the Hanna Bypass) (see Figure 2.1 in the DEIS). The Hanna Bypass would be a county road and available for public use before, during, and after mining. Funding for the project is being provided by Arch, AML, Wyoming's Industrial Road Project, and Carbon County. The Hanna Bypass is a county project that does not involve any federal lands; therefore, it is included only in the cumulative impacts analysis in this EIS.

Under the No Action Alternative, one mine permit application would be prepared to satisfy WDEQ requirements for baseline analyses of affected resources and detailed mine, reclamation, and mitigation plans. Whereas Chapter 5.0 in the DEIS presents generalized mitigation measures and performance standards for mine development and operation, the mine permit application would include site-specific mitigation measures (e.g., placement of erosion control devices, location and construction of sediment ponds, drainage retention plans).

Arch proposes to use two surface-mining methods at the Elk Mountain Mine: 1) conventional drilling and blasting combined with a dragline for overburden and coal removal and 2) an Archveyor™ continuous mining machine (see Figure 2.3 in the DEIS) for mining coal on exposed highwalls. Approximately 15.05 million tons of coal would be mined using a dragline and 7.40 million tons would be mined using the Archveyor™.

The mining sequence would include: topsoil salvage; overburden drilling, blasting, and removal; and coal drilling, blasting, removal, and transport to a loadout/ coal-handling facility where the coal would be crushed and loaded onto trains for final transport. When the first pit is opened, topsoil and overburden would be salvaged and stockpiled separately, and coal would be removed. As mining progresses, topsoil would be salvaged in advance of the pit, and overburden removed with the dragline would be cast directly into a previously mined area and regraded. Thus, mining and backfilling would become a continuous operation, reducing the need to handle overburden material more than once. Pursuant to the approved reclamation schedule, salvaged topsoil would be replaced on regraded areas, and the area would be revegetated. Where possible, topsoil would be directly backhauled and placed on regraded areas. Large haul trucks (e.g., 200-ton capacity) would haul coal from the pits to transfer stations where it would be loaded onto over-the-road haul trucks.

Once a coal-bearing highwall has been exposed, additional coal would be mined using an Archveyor™ which consists of a modified continuous miner coupled with an articulated traveling conveyor system. The Archveyor™ would be computer-controlled to automatically shear up and down within a coal seam, dumping cut coal onto the conveyor. The conveyor would be approximately 5 ft off the ground and driven by 40 horsepower motors spaced at 24.5-ft intervals. A loadout at the conveyor's terminus would elevate the coal so that it could be loaded into haulage trucks (either over-the-road or 200-ton haul trucks).

Surface mining would begin with a pit in the southwestern portion of the CBCPA, and successive mining passes (i.e., topsoil salvage, overburden removal, and coal removal) would be made parallel to the pit's northern face, so that initial mining would advance in a northeasterly direction (see Figure 2.2 in the DEIS). The Archveyor™ would be erected after approximately five passes, after which both mining methods would be employed for the life of the surface mine. The anticipated production rate would be between 1.3 and 3.1 million tons per year.

As part of the mining plan, Arch would leave a 100-ft buffer of unmined land around Second and Third Sand Creeks (see Figure 2.2 in the DEIS). The only impact would occur in 2002 when the dragline would be walked from the southwestern to the northeastern portion of the CBCPA during which Third Sand Creek would be crossed twice. At each crossing, a temporary pad, constructed according to WDEQ requirements and composed of gravel, would be placed in the stream channel to provide a relatively level surface for dragline passage. Pad slopes would be stabilized using riprap, netting, or other appropriate material, and sediment fences or other sediment trapping devices would be placed at the base of the pad such that, if a storm occurs while the pad is in place, sediments would not be transported downstream. Pads would be in place no longer than 3-4 days; after the dragline passes, pads would be removed according to a WDEQ-approved plan. The dragline walk road would be reclaimed from 750 ft wide to 200 ft wide and used as a haul road for the remaining LOM. Culverts would be installed where the haul road crosses Third Sand Creek in accordance with the WDEQ-approved mining plan.

Reclamation would be completed throughout the LOM as construction and mined-out areas are no longer required for operations. A detailed reclamation plan, including a reclamation schedule, would be developed for the ROWs and the mine permit pursuant to BLM and WDEQ regulations. Once construction is complete, all disturbed areas not required for operations would be reclaimed. Arch will finish reclaiming the existing Medicine Bow and Seminoe II Mines and then transfer reclamation personnel and equipment to the Elk Mountain Mine. No more than four successive cuts would be made before spoils piles from previous cuts are regraded, topsoiled, and revegetated. When mining is complete, the postmining topography would be restored to the approximate original contour or an approved equivalent. Slopes would be regraded, topsoiled, and revegetated. Facilities, including power lines, would be removed to at least 6.0 inches below ground level, and facilities areas would be reclaimed as required by the WDEQ-approved reclamation plan. The final topography would be similar to the premining topography, but postmining slope gradients would be slightly less steep (e.g., 0-12% compared with 0-13%).

Each phase of reclamation (i.e., postconstruction, interim, and final reclamation) would involve the following steps. Spoils would be regraded to a WDEQ-approved postmining topography. Topsoil would be replaced on graded spoils and tilled and treated to prepare the seedbed. Tillage and treatment methods would vary depending on soil type and landscape position, but would probably include ripping, discing, and possible addition of soil amendments. Prepared areas would be seeded with an approved seed mixture, and newly seeded areas would be protected, as appropriate, from wind and water erosion, grazing by livestock and wildlife, and unauthorized traffic using mulches, netting, fencing, signing, or other appropriate methods. Weeds would be controlled according to an approved weed-control program. The detailed reclamation plan would be included in the ROWs and mine permit.

Final reclamation would begin in 2008 and would take approximately 5 years to complete (i.e., 2012).

Under the Proposed Action, BLM would hold a coal lease sale of the LBA tract (see Figure 1.2 in the DEIS), subject to coal lease stipulations developed in the Planning Review EA (BLM 1997a) and this EIS. Because the proposed project area is within an area of "checkerboard" landownership (a pattern of alternating sections of federal, state, and private land), the use of federal land is needed for optimal mine development. This EIS analyzes a projected Proposed Action disturbance area of up to 4,896 acres (up to 50% more than under the No Action Alternative) from mining and from power line, railroad, and road corridors outside the LBA tract (see Table 2.2 in the DEIS). Surface landownership of disturbed lands would include approximately 4,320 acres of private land, 179 acres of state land, and 397 acres of BLM-administered public land.

Surface mining would occur as described for the No Action Alternative with an additional 837 acres (a 26% increase) disturbed because more coal would be surface-mined (see Table 2.2 in the DEIS). Underground mine development would

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occur within the pits created by surface mining. Portals would be constructed using continuous mining machines to cut the main entries to the underground coal. Additional on-site facilities would include an underground longwall mining system. Depending on the transportation option selected, the coal-handling facility (used to load coal into railcars) would be located within the CBCPA or near Medicine Bow. Two additional 115-kV substations would be required to operate underground mine equipment and the coal-handling facility. Once the underground mine is near full production, the existing Seminoe II loadout facility would be disassembled and reclaimed according to Arch's currently approved reclamation plan (Permit No. 377-T4). Facilities and transportation corridor construction (e.g., coal-handling facility, haul roads, a railroad) would create up to 789 acres of additional disturbance, for a total surface disturbance of up to 4,898 acres.

Arch's proposed transportation plan would include 6 years (2000-2005) of hauling coal via the primary haul road west to Highway 72, north on Highway 72 to Hanna Junction, east on Highway 30/287 to the Hanna Bypass, and then north on the Hanna Bypass to the Seminoe II loadout (see Figure 2.1 in the DEIS). Concurrent with underground mine development, Arch proposes to construct a railroad between the CBCPA and the Union Pacific Railroad near Medicine Bow (see Figure 2.4 in the DEIS), and beginning in 2005, all coal (except for local customers) would be hauled via rail. However, in response to public concern about haul truck traffic on Highway 72, BLM has developed additional transportation options. Selection of one or more transportation options over Arch's proposal to haul coal on Highway 72 for the first 6 years of mining would alleviate the safety hazards and maintenance concerns for Highway 72, but would also have ramifications for other resources such as wildlife, visual resources, air emissions, etc. Any ROWs outside the permit area would include a BLM-approved ROW reclamation plan. Environmental consequences of each option are analyzed as part of the Proposed Action in Chapter 4.0 of this EIS.

As part of the Proposed Action, Arch would prepare a detailed Resource Recovery and Protection Plan (R2P2) for BLM and two mine permit applications for WDEQ. The R2P2 would describe how the proposed operation would meet MLA requirements for diligent development, production, resource recovery and protection (i.e., efficient recovery of the federal coal reserves), continued operation, maximum economic recovery, and the rules of 43 CFR 3480 for the LOM. MLA requires that, before conducting any federal coal development or mining operation on federal coal leases, the operator must submit an R2P2 within 3 years of the effective date of the lease. The lessee is obligated to mine according to the approved R2P2 or face lease suspension or cancellation. Two mine permit applications would be prepared to satisfy Office of Surface Mining (OSM) and WDEQ requirements for baseline analyses of affected resources and detailed mine, reclamation, and mitigation plans.

Under the Proposed Action, the surface mine would be developed and operated as described for the No Action Alternative although more coal would be mined using surface-mining methods. Large trucks (e.g., 200-ton capacity) would haul coal from the pits to transfer stations or coal-handling facilities, depending on the transportation option selected. Of the 34.5 million tons of surface-minable coal, an estimated 31.1 million tons (90%) would be recovered (25% more than for the No Action Alternative). Of the 197.1 million tons of underground-minable coal, 88.02 million tons (45%) would be recovered. The anticipated production rate would be between 1.3 and 7.7 million tons per year.

Underground mining would be performed using a standard longwall mining system which utilizes a shearing device with two rotating drums for cutting coal, a self-propelled hydraulic roof support, and a conveyor to continuously mine coal (see Figure 2.10 in the DEIS). During the first year of underground mine development (2003), main entries (the South Mains) would be cut in Section 34, T.20 N., R.80 W. (see Figure 2.9 in the FEIS). During the second year, additional main entries (the East Mains) would be cut in Section 29, T.21 N., R.79 W. The South and East Mains would intersect underground in Section 24, T.21 N., R.80 W.

Main entries would be cut using continuous mining machines equipped with rotating drums with bits that cut coal directly from an exposed coal face and load it on to a conveyor or into shuttle cars, which haul it to a conveyor. Main entries would be initiated at the base of the highwalls exposed by surface mining and would follow the Johnson Seam down to approximately 600-800 ft, where most underground mining would occur. The East and South Mains would be approximately 2.0 mi and 3.3 mi long, respectively, and approximately 18 ft wide and 10 ft high.

The continuous miners would then cut around blocks (referred to as panels) of underground coal (see Figure 2.11). Each panel would be approximately 1,000 ft wide and 10,000 ft long. Once the South and East Mains intersect (in Section 24, T.21 N., R.80 W.) and the first few panels have been developed, a longwall mining system would be installed at the western end of the southwesternmost panel.

While the continuous miners continue to develop longwall panels, the longwall mining system would mine from the exposed coal face of each panel. The longwall mining system would be equipped with a shearer that has two rotating drums for cutting coal, a self-advancing hydraulic roof support system, and a conveyor to transport coal. The rotating drums would move down and up along the coal face, cutting approximately 18 inches with each pass. The hydraulic roof support system would automatically move towards the receding coal face, and the roof would be allowed to cave into mined-out areas. Cut coal would fall onto a chain conveyor to be transported to a tailgate conveyor and up to the ground surface via the east mains, where it would be temporarily stockpiled in a storage barn. For panels on the western side of the mine, mining would occur from west to east along the coal face. At the end of each pass, the drum and roof support system would be walked back to the western end for another pass. This pattern would be reversed on the eastern side.

The underground mine would be ventilated with exhaust fans along the portals and vertical air shafts located on the South and East Mains.

At the coal-handling facility, raw coal would be dumped into storage barns or a hopper in a crushing building, where the coal would be sized to 2 inches and then conveyed to storage silos or to a tipple equipped with an automatic sampling system and scales. Coal would be loaded into railcars from the tipple. The entire facility would be fully enclosed to minimize fugitive dust emissions.

Estimated production rates for the underground mine would range from 0.3 to 6.6 million tons per year. Total production from combined surface and underground operations would range from 1.3 to 7.7 million tons per year.

Nine additional alternatives were considered but not analyzed in detail.

- Prohibit mining of the tract.
- Hold a competitive lease sale of other tract configurations to make the LBA tract attractive to other bidders.
- Hold a competitive lease sale for a BLM-preferred tract configuration.
- Postpone competitive lease sale.
- Hold a competitive lease sale for surface-minable coal only (exclude future leasing of underground reserves).
- Hold a competitive lease sale for underground reserves only.
- Alternative mining plans (resource protection alternatives).
- Alternative mining methods.
- Upgrade Highway 72 to four lanes.

The following critical elements of the human environment would be affected or potentially affected by the No Action Alternative and the Proposed Action: air quality, cultural resources, floodplains, Native American religion concerns, threatened and endangered species, hazardous or solid wastes, water quality, and wetlands/riparian zones. This EIS also discusses the critical elements of environmental justice and wilderness. In addition to critical elements, this EIS discusses potential effects of the proposed project on climate, topography/physiography, geology, minerals, geologic hazards, paleontological resources, water quantity and use, soils and watershed, noise, odor, electric and magnetic fields, vegetation, wildlife and fisheries, socioeconomics, surface ownership and use, and visual resources.

Air quality in the region is generally good (BLM 1995a). The CBCPA is located entirely within the Laramie Air Basin, which is designated as a Prevention of Significant Deterioration (PSD) Class II area under the WDEQ, Air Quality Division (AQD) Implementation Plan (BLM 1987a:152-168). PSD Class II areas are those that may be developed, and the release of limited concentrations of certain pollutants over Class II PSD increments is permitted as long as National Ambient Air Quality Standards are maintained (AQD 1989) and emissions are within the PSD Class II increment. The nearest PSD Class I area (an area where little air quality deterioration is allowed) is the Savage Run Wilderness, located approximately 30 mi south-southwest of the CBCPA. Although the Savage Run Wilderness Area is not a federally mandated PSD Class I area, it has the legal requirement to be managed as a Class I area under the Wyoming Air Quality Standards and Regulations. Other Class I areas in the region include the Bridger Wilderness in Wyoming and the Mount Zirkel Wilderness in Colorado.

Fugitive dust (uncontrolled wind-carried particles) from natural sources, surface coal mines, highway construction, roads, and other types of development or disturbances (e.g., recreation and livestock grazing) increases the ambient level of suspended particulates in and adjacent to the CBCPA, especially during dry windy periods. Visibility in the region is very good (generally greater than 70 mi), and fine particles are considered to be the main source of visibility degradation.

Air pollutant emissions would be highest in 2005 (see Table 4.2 in the DEIS); during this year, no exceedances of National Ambient Air Quality Standards or Wyoming Ambient Air Quality Standards are anticipated at or beyond the CBCPA boundary. This demonstration indicates that, during mine operation, pollutant concentrations in ambient air at areas of public access will be within the standards developed by the U.S. Environmental Protection Agency and the WDEQ for the protection of public health. Furthermore, all concentration contributions are smaller than applicable PSD increments. Air quality monitoring stations would be established prior to mine development in accordance with Chapter I, Section 21(f)(iv) of the Wyoming Air Quality Standards and Regulations, and air quality would be monitored for the LOM.

The proposed coal mines and transportation corridors would be located primarily in the Carbon Basin, a deep structural and topographic basin composed of 11,000-14,000 ft of sedimentary rocks. The Carbon Basin is separated from the Hanna Basin by a northeast-trending anticline that forms Simpson Ridge. Elevation within the CBCPA ranges from 6,820 ft in the floodplain of Second Sand Creek to 7,660 ft on Simpson Ridge. Relief between plains and ridges is typically less than 200 ft. The landscape is composed of rolling hills, relatively flat floodplains and uplands, deeply dissected valleys, and steep ridges. In the CBCPA, drainage is predominantly to the east-northeast via Third and Second Sand Creeks, which are tributaries to the Medicine Bow River (see Figure 3.4 in the DEIS). In the Simpson Ridge vicinity, drainage is to the northeast into First Sand Creek. The transportation corridor areas also ultimately drain into the Medicine Bow River via ephemeral channels, although a small portion of runoff drains into playas with no outlets. The project area is within the Medicine Bow River watershed which is within the North Platte River watershed.

The No Action Alternative and Proposed Action would have widespread, long-term, and permanent effects on topography. During mining, direct impacts to topography would include short- and long-term disruption of the landscape due to pit excavation and the development of a 175- to 200-ft highwall and 100-ft high spoil piles. After reclamation, topography in surface-mined areas (including areas mined with the Archveyor®) would be similar to premine topography, with the exception that the overall landscape would be somewhat flatter and approximately 10 ft lower because coal has been removed. Impacts to topography due to underground mining would include the subsidence of approximately 7,322 acres (257 acres of which would already be affected by surface mining), which would result in a gradual lowering of the landscape. Topographic impacts would also likely alter snow distribution patterns within and adjacent to mined areas. Lowering of the landscape due to coal removal and subsidence would not constitute a significant effect on the human environment, and none of the topographic impacts would violate management objectives.

Coal reserves in the CBCPA are predominantly contained in the Hanna Formation. There are an estimated 34.5 million tons of low-sulphur bituminous surface-minable coal and 197.1 million tons of underground-minable coal within the CBCPA.

Compared with other coal beds, the Johnson Seam (the principal seam proposed for mining), which occurs at the base of the Hanna Formation, is most consistent in quality, distribution, and thickness and thus is the most important seam within the Hanna Formation (Morrison-Knudsen Company, Inc. 1977). In areas proposed for surface-mining, depth of the Johnson Seam ranges from 0 to 200 ft below the ground surface. In areas proposed for underground mining, the Johnson Seam is 200-600 ft underground. Thickness ranges from very thin or absent up to 32 ft and averages approximately 11-12 ft. The Johnson Seam contains few partings, but shaley zones (1.0-2.0 inches thick) are common throughout the seam.

Under the No Action Alternative, removal and eventual combustion of approximately 22.45 million tons of surface-recoverable coal would constitute a significant impact because it is nonrenewable. Approximately 209.15 million tons of surface- and underground-minable (see Table 1.1 in the DEIS) coal would be bypassed. This would also constitute a significant impact. Under the Proposed Action, an estimated 119.12 million tons of surface- and underground-recoverable coal would be removed and eventually combusted (431% more than for the No Action Alternative). This would constitute a significant impact because it is nonrenewable. An estimated 112.48 million tons of surface- and underground-minable coal would be bypassed; this would also constitute a significant impact.

Oil, gas, and other mineral exploration and development would be permitted in the CBCPA for the LOM as long as exploration and development would not interfere with coal mine development and operations. The potential for near-future oil and gas development in the CBCPA is slight.

Important paleontological resources on CBCPA (fossils of scientific significance) are not likely to be directly (i.e., destroyed due to mining or Archveyor® subsidence) or indirectly (i.e., collected by unauthorized personnel) impacted by the project because there is low potential that important paleontological resources occur in the CBCPA. While the formations within the CBCPA are known to contain important fossils elsewhere in the Carbon and Hanna Basins, results of a field survey for fossils showed that there was little potential to encounter important fossils during mine development and operation (Winterfeld 1997); therefore, no significant impacts are anticipated.

As part of the mine permit application, Arch would be required to prepare a detailed soil handling plan (e.g., amount to be salvaged by soil type, locations and volumes of topsoil stockpiles, topsoil stockpile protection measures) and a detailed soil replacement and reclamation plan, including specific soil treatments needed to restore productivity. Because soils would be protected for the LOM and productivity would be restored during reclamation, impacts to soils under the No Action Alternative and the Proposed Action would not be significant.

The normal annual precipitation (12 inches) in the CBCPA vicinity produces approximately 0.13 cubic feet per second (cfs) of runoff per square mile of drainage area. Runoff occurs mainly as a result of summer thunderstorms and rain showers; however, a small portion results from snowmelt (Mesilla Valley Engineers, Inc. 1977). Runoff events are of high intensity and short duration.

The principal drainages within the CBCPA are Second and Third Sand Creeks, which are tributaries of the Medicine Bow River, the only perennial stream in the vicinity (see Figure 3.4 in the DEIS). The extreme northwest corner of the project area is drained by First Sand Creek. Second Sand Creek flows east through the CBCPA and intersects the Medicine Bow River approximately 3 mi east of the CBCPA. Third Sand Creek flows southeast and then turns northeast, leaves the CBCPA, and flows 2.5 mi to its confluence with Second Sand Creek. Watershed areas for Second and Third Sand Creeks are 12.0 square (sq) mi and 10.7 sq mi, respectively. The southwestern portion of the CBCPA lies in a closed basin approximately 9.4 sq mi in size.

As part of the permit to mine, Arch would be required to prepare a detailed surface water protection plan which would include provisions for diversions, sediment ponds, channel modifications and restorations, and surface water monitoring. Channel and drainage restoration plans would be included in the WDEQ-approved reclamation plan. Therefore, no significant surface water impacts are anticipated.

The Lewis Shale outcrops around the entire Carbon Basin, with the exception of a small area at the basin's northwestern end, forming a bowl-shaped layer of relatively impervious material and thereby separating the overlying aquifer system from regional aquifers (BLM 1979; Vaughn Hansen Associates, Inc. 1982) (see Figure 3.5 in the DEIS). The Lewis Shale almost completely eliminates hydrologic connection between the CBCPA and the Medicine Bow River. Alluvial aquifers along the Medicine Bow River overlie the Lewis Shale and the Medicine Bow Formation but are not in contact with the Hanna Formation.

Impacts to groundwater within the Carbon Basin would include:

- direct groundwater consumption at a rate of up to 126,000 gallons per day;
- indirect groundwater loss due to evaporation;
- temporary loss and permanent alteration of coal and overburden aquifers due to mining and subsidence;
- direct impacts to groundwater users due to groundwater consumption and drawdown in areas adjacent to the proposed mines;
- possible very long-term (thousands of years) reduction in groundwater quality in the replaced overburden aquifer or overburden that is broken during subsidence; and
- accidental temporary pollution caused by unwanted discharges to groundwater.

Arch would be required to implement a LOM groundwatering monitoring program, and thus impacts to groundwater would not be significant.

Compliance with Mine Safety and Health Administration (MSHA) rules, potential loss of hearing, or increased noise levels that would adversely affect local residents' ability to sleep or perform daily tasks are primary concerns for noise management within the CBCPA and along the transportation corridors. The analyses presented in this EIS show that noise impacts associated with the No Action Alternative and the Proposed Action would not be significant.

Sagebrush shrubland (11,867 acres), mixed shrub/rough breaks (3,508 acres), bottomland shrub (1,346 acres), and grass/subshrub (865 acres) constitute 96% of the total naturally occurring vegetation within the CBCPA (see Table 3.13). Approximately 2% of the total project area was previously disturbed by mining and has been reclaimed or is currently disturbed due to roads, pipelines, and abandoned mines. The remaining land area (2% of the CBCPA) consists of bottomland grasslands, playas, reservoirs/stockponds, greasewood flats, hay meadows, and cottonwood bottoms.

As part of the permit to mine, Arch would be required to prepare a detailed reclamation plan which would include procedures for establishing self-sustaining plant communities and standards for revegetation success. Arch would be required to post a reclamation bond which would not be released until revegetation success standards have been met. Thus, no significant impacts to vegetation would occur under the No Action Alternative or the Proposed Action.

There are more than 30 potential wetlands (approximately 150 acres) within the CBCPA (see Figure 3.4 in the DEIS). Most wetlands occur adjacent to the Medicine Bow River (up to 0.5 mi from the main channel) where periodic flooding has caused the development of wetland hydrologic, vegetative, and soils characteristics. Approximately 30 acres of wetlands (impoundments and springs) occur along Second and Third Sand Creeks and are classified as temporarily, seasonally, or semipermanently flooded. Additionally, 23 potential wetlands, most of which are less than 1 acre in size, occur in small depressions and playas throughout the CBCPA.

Arch would be required to develop a wetland mitigation plan, in consultation with WDEQ and the U.S. Army Corps of Engineers, which would be implemented during final reclamation such that wetlands would be restored acre-for-acre (or more) and wetland values and functions (i.e., hydrologic and ecologic characteristics) would be similar to premine conditions. In addition to mitigation requirements for jurisdictional wetlands, it is the BLM's policy to protect all wetlands located on BLM-administered surface. On those areas where BLM owns the coal and the surface is privately owned, the BLM would discuss wetland protection with the surface owner. Therefore, impacts to wetlands would not be significant.

The topography, soils, water resources, and vegetation within the CBCPA provide habitats used by numerous wildlife species (see Table 3.15 in the DEIS). Four big game mammal species occur on or adjacent to the CBCPA: pronghorn, mule deer, white-tailed deer, and elk. An additional 67 mammal species are known to occur or are likely to occur in the vicinity of the CBCPA. Predator species known to occur or potentially occurring in the area are coyote, red fox, swift fox, gray fox, black bear, raccoon, ermine, long-tailed weasel, black-footed ferret, mink, badger, western spotted skunk, striped skunk, mountain lion, and bobcat (Clark and Stromberg 1987; TRC Mariah Associates Inc. [TRC Mariah] 1995; Intermountain Resources, Inc. 1997; Luce et al. 1997). Lagomorph species include desert cottontail, mountain cottontail, black-tailed jackrabbit, and white-tailed jackrabbit (Clark and Stromberg 1987; TRC Mariah 1995; Intermountain Resources, Inc. 1997; Luce et al. 1997). Sciurids (i.e., squirrels) known to occur or potentially occurring within the CBCPA include yellow pine, least, and Uinta chipmunks; yellow-bellied marmot; Wyoming, thirteen-lined, and golden-mantled ground squirrels; white-tailed prairie dog; and eastern fox and red squirrels (Clark and Stromberg 1987; TRC Mariah 1995; Intermountain Resources, Inc. 1997; Luce et al. 1997). Other rodents in the area include northern pocket gopher, olive-backed and silky pocket mice, Ord's kangaroo rat, beaver, western harvest mouse, deer mouse, white-footed mouse, northern grasshopper mouse, bushy-tailed woodrat, several

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species of voles (i.e., southern red-backed, heather, montane, long-tailed, prairie, and sagebrush), muskrat, western jumping mouse, and porcupine. Several species of shrews (i.e., masked, pygmy, dusky, dwarf, water, and Merriam's) and bats (i.e., pallid bat, little brown myotis, long-legged myotis, fringed myotis, small-footed myotis, Townsend's pale big-eared bat, big brown bat, and hoary bat) also are known to occur or may occur on the CBCPA (Clark and Stromberg 1987; personal communication, August 15, 1997, with Bob Luce, Nongame Biologist, Wyoming Game and Fish Department [WGFD]) (see Appendix A in the DEIS).

The entire CBCPA is considered suitable habitat for raptor hunting, foraging, and perching. Raptor species observed within or adjacent to the CBCPA include turkey vulture, osprey, bald eagle, northern harrier, sharp-shinned hawk, northern goshawk, broad-winged hawk, Swainson's hawk, red-tailed hawk, ferruginous hawk, rough-legged hawk, golden eagle, American kestrel, merlin, peregrine falcon, prairie falcon, great horned owl, western burrowing owl, short-eared owl, and northern saw-whet owl (TRC Mariah 1995; Intermountain Resources, Inc. 1997; WGFD 1997b). Other raptor species potentially occurring within or adjacent to the CBCPA are Cooper's hawk, barn owl, and long-eared owl (Scott 1987; Russell 1990; WGFD 1994; TRC Mariah 1995; Luce et al. 1997). Most breeding species in the area migrate south to more hospitable climates during the winter; however, golden eagles, bald eagles, and great horned owls remain year-round. Rough-legged hawks move into the CBCPA during the winter and migrate north during the breeding season. Peregrine falcons have been observed hunting adjacent to the CBCPA (TRC Mariah 1995).

One hundred seventy-five intact raptor nests were located within the 59,225-acre (94-mi^2) wildlife survey area in 1997 (see Table 3.16 in the DEIS), for a total density of 1.86 nests per mi^2 and 0.32 active nest per mi^2 (Intermountain Resources, Inc. 1997).

Two species of upland game birds--sage grouse and mourning dove--and approximately 148 passerine species occur within the CBCPA. The mourning dove is a common breeding bird in the CBCPA, and a number of waterfowl species have been observed on the various impoundments, reservoirs, and perennial creeks and rivers within and immediately adjacent to the area.

Five threatened, endangered, or candidate (TE&C) wildlife species have been documented or potentially occur on the CBCPA (black-footed ferret, bald eagle, peregrine falcon, mountain plover, and swift fox) (see Table 3.18 in the DEIS). Thirty-six additional U.S. Fish and Wildlife Service (USFWS) and/or Wyoming state species of concern occur or potentially occur in the CBCPA.

The EIS analysis shows that the proposed mine(s) would result in locally significant impacts for crucial winter range and overlapping crucial winter ranges for pronghorn and mule deer and for sage grouse strutting grounds and breeding habitat where habitat is removed; however, with mitigation, mine development and operation should not have a significant impact at the regional population level and management objectives would be met for all wildlife resources. Direct avian mortality due to collisions with vehicles, power lines, etc., would constitute an illegal take under the *Endangered Species Act*, the *Migratory Bird Treaty Act*, and/or the *Bald Eagle Protection Act*, depending on the affected species and would constitute a significant impact.

A total of 160 cultural resources sites has been recorded within the CBCPA; 114 sites are prehistoric, 37 are historic, and nine are multicomponent--containing both prehistoric and historic resources. Sites recommended as eligible for nomination to the National Register of Historic Places (NRHP) include the Johnson, Kent, Black Diamond, and Richardson Mines and the Johnson winter ranch headquarters, and four of the multicomponent sites have components that are recommended as potentially eligible. The remaining sites are recommended as not eligible.

All eligible sites would either be avoided or otherwise mitigated via an agency-approved data recovery program. At the time of FEIS preparation, the Class III inventory report was in agency review, and it was not known which sites the agencies (BLM, State Historic Preservation Office [SHPO], WDEQ, and OSM) would designate as eligible. Agency determination of eligibility would be required prior to implementing a testing program to determine the significance of potentially eligible sites. Native American consultation will be conducted to determine NRHP eligibility of sites important to Native Americans. With mitigation and monitoring, mine development and operation would not cause significant impacts to cultural resources.

Mine development and operation would continue employment opportunities for workers now employed at Arch's Medicine Bow and Seminoe II surface coal mines, both of which will likely be mined out by the year 2000. Continued or increased employment would be significant and beneficial. Property values at the N/S Livestock Company and Johnson Ranches would decrease for the LOM, which would constitute a significant impact.

Communities within Carbon County, entities with interests in the area, and individuals with ties to the area all have concerns about the presence of coal mine(s) in the area. With regards to environmental justice issues affecting Native American tribes or groups, the CBCPA contains no tribal lands or Native American communities, and no treaty rights or Native American trust resources are known to exist for this area.

There could be a 1,140% increase in truck traffic depending on the leasing alternative and transportation options selected (see Table 4.17 in the DEIS). Traffic volume (up to 914 vehicles per day) could exceed Highway 72 design standards (744 vehicles per day). Arch is currently negotiating with the Wyoming Department of Transportation to develop mitigation for this impact which, without mitigation, would be significant. Loss of life and property due to accidents would also constitute a significant impact. The increased traffic volume would increase the likelihood of traffic accidents, especially at intersections such as the junction of Highways 72 and 30/287 where haul trucks returning to the mine would have to make a left-hand turn across traffic. No other impacts would be significant because no violations of Wyoming Department of Transportation regulations would occur.

Major land uses within and adjacent to the project area are agriculture (primarily cattle and sheep grazing); wildlife habitat; dispersed outdoor recreation (e.g., hunting, hiking, camping, wildlife observation, nature photography, and off-road vehicle use); and oil and natural gas exploration, development, and transportation. Mining was a previous land use, as exhibited by the numerous abandoned mines in the CBCPA.

Surveys of Carbon County residents conducted recently as part of the development of a Carbon County land use plan suggested a need to balance the conservation of natural resources and the economic viability of resource-based industries in the county; however, commercial mining activities were viewed favorably by 54% of those responding to the question (Pedersen Planning Consultants 1997). The Carbon County Land Use Plan (Pedersen Planning Consultants 1997) recommends that areas in the county suitable for surface or underground coal mining be designated to accommodate those uses.

The CBCPA and most of the transportation corridors are within a Visual Resource Management (VRM) Class III area. The northwestern portion of corridors B-1, B-2, B-3, C-1, and C-2 are within a VRM Class IV area. VRM objectives for Class III areas allow moderate changes to the existing landscape, but management activities associated with these changes should not dominate the view of the casual observer and changes should repeat the basic elements of the characteristic landscape. VRM objectives for Class IV areas allow changes that may subordinate the original composition and character, but reflect what could be a natural occurrence in the landscape.

There has been little development within the CBCPA and along the transportation corridors such that the natural visual quality is relatively undisturbed. Existing developments that currently affect visual quality include roads, pipelines, telecommunications lines, power lines, mines, PacifiCorp's 230-kV transmission line, and oil and gas development. At the northern ends of the transportation corridors, other developments such as the towns of Hanna and Medicine Bow, the Seminoe II Mine, Miner's Substation, and Highway 30/287 affect existing visual quality.

Topography would screen the mine for all but 0.5 mi along Interstate 80 (I-80) and 1.0 mi along Highway 72 (see Figure 4.8 in the DEIS); therefore, the dragline and spoil piles would be visible for 0.5-1.0 minute off to the viewer's side and thus is not likely to dominate the view of a casual observer. Furthermore, most motorists [illegible] this area would be looking at Elk Mountain, which is a strikingly scenic feature and on the opposite side of I-80 and thus would draw attention away from the mine. If the spoils and dragline were viewed head-on for several minutes, the mine would dominate the view, but given the circumstances along I-80 and Highway 72 in the mine area, impacts are not expected to be significant. For off-highway viewers (e.g., travelers on County Road 3, ranchers, recreationists, etc.) in the mine vicinity and residents of the N/S Livestock Company and Johnson Ranches, the mine would dominate the landscape and thus would significantly impact visual quality. However, the number of viewers would be relatively few.

Arch evaluated potential hazardous wastes within the CBCPA using existing sources of information. The area was found to be free from obvious environmental degradation within the scope of the hazardous substances and petroleum products identified in the *Comprehensive Environmental Response, Compensation, and Liability Act of 1920*. Potential sources of future contamination would include:

- spilling, leaking, and/or dumping of hazardous substances, and/or petroleum products associated with mineral, coal, oil, and/or gas exploration and development and agricultural and livestock activities and
- other sources of contamination not currently obvious or identifiable.

The small amount of soil that potentially could be contaminated, coupled with appropriate and timely cleanup, would result in negligible potential soil impacts from accidental spills. Proper containment of oil and fuel in storage areas and location of facilities away from drainages would limit potential surface and groundwater contamination and preclude any possible wildlife exposure.

Since project operations would comply with all relevant federal and state laws regarding hazardous materials and with directives identified in the Hazardous Materials Management Plan and the Spill Prevention, Control, and Countermeasures Plan for this project, no significant impact is anticipated.

The primary irreversible and irretrievable commitment of resources would include labor, materials, and energy expended during mine development, operation, and reclamation; coal mining and eventual combustion; groundwater consumption by mine equipment and loss via evaporation; surface water loss via evaporation; soil loss through wind and water erosion; loss of productivity (i.e., forage, wildlife habitat) from lands devoted to project activities during the time those lands are out of production and until they are successfully revegetated; inadvertent destruction of paleontological or cultural resources; and accidental animal mortality as discussed in the impact analysis in Chapter 4.0.

LOM fuel consumption under the No Action Alternative would be an estimated 12.71 million gallons for mining and reclamation plus an additional 4.87 million gallons for over-the-road coal haulage (see Table 4.18 in the DEIS). Under the Proposed Action, LOM fuel consumption would be an estimated 40.63 million gallons (a 27.92 million gallon [220%] increase over the No Action Alternative) for mining and reclamation plus an additional 0-33.29 million gallons per year depending on the transportation alternative selected.

Under the No Action Alternative, an estimated 138.00 million kilowatt hours (kwh) would be required over the LOM (see Table 4.19 in the DEIS). Electricity consumption would be greatest between 2001 to 2007 (approximately 16.20 million kwh/yr). The dragline, estimated to consume 0.7 million kwh/month, would be the greatest consumer of electricity under the No Action Alternative. Electricity consumption for the Archveyor™ (2001-2010) would be approximately 0.3 million kwh/month. Loadout facilities are estimated to consume 0.15 million kwh/month (1.8 million kwh/yr), and general support facilities are estimated to use 0.2 million kwh/month.

Under the Proposed Action, approximately 354.00 million kwh would be consumed over the LOM (216.00 million kwh more [a 157% increase] than for the No Action Alternative). Consumption at the mine (i.e., excluding transportation options) would be highest between 2005 and 2010 when an estimated 24.00 million kwh/month would be used. Electricity consumption rates for the longwall mining system (2005-2020) and the continuous miners (2004-2020) would be approximately 0.40 million and 0.25 million kwh/month, respectively.

Only the conveyor transportation option (options 7, 8, and 10) uses additional electricity, over-and-above the amount required for the Proposed Action. Under options 7 and 8, an additional 155.52 million kwh would be consumed; under option 10, an additional 544.32 million kwh would be consumed.

Chapter 5.0 in the DEIS reproduces, in their entirety, WDEQ's performance standards for surface and underground mines and BLM's mitigation guidelines. These standards and guidelines were developed specifically for the purpose of environmental protection, and Arch would be required to comply with all of the applicable requirements. These regulations and guidelines have been reproduced because they provide the details of mitigation and monitoring required for this project but they may not be readily available to the public or other EIS reviewers for whom proposed mitigations must be fully disclosed. The environmental analysis presented in Chapter 4.0 assumes that these mitigation measures would be successfully implemented for the LOM. The FEIS includes a new Section 5.4 which lists additional mitigations, committed to by Arch, for impacts identified during the DEIS.

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2.0 NO ACTION, PROPOSED ACTION, AND ALTERNATIVES

Page 2-1, column 2, paragraph 1, line 4. Replace "due to environmental considerations." with "based on results of the coal screening process."

Page 2-1, column 2, paragraph 1, line 16. After "(Saddleback Hills) mines." add "The Proposed Action is BLM's preferred alternative."

2.1.1 Overview

Page 2-5, column 1, paragraph 3, line 2. After "and end in 2007." add "The dates given in this analysis are the current estimates of when mining would occur, but the actual dates would depend on the date of mine permit approval."

2.1.5 Power Line and Substation Construction

Page 2-17, column 2, paragraph 2, line 9. Replace "*Suggested Practices for Raptor Protection on Power Lines* (Olendorff et al. 1981)" with "*Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* (APLIC 1994) and *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* (APLIC 1996)".

2.2.4.1 Mining Methods

Page 2-36. Replace Figure 2.9 with Figure 2.9 on the next page.

2.4 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Page 2-53, column 2, paragraph 4, line 1. Replace "Eight" with "Nine".

Page 2-54, column 1. Before paragraph 1, insert the following paragraphs.

"No Action - No Mining Alternative. Under this alternative, the coal lease would not be offered for competitive sale at this time. For purposes of this analysis, the No Action-No Mining Alternative would assume that the adjacent private land and coal would not be developed. This alternative was not analyzed further for the following reasons:

1) The CBCPA is located in an area of checkerboard landownership (i.e., alternating federal, state, and private lands). Ark owns over 70% of the land and approximately 60% of the coal in the project area. Ark's development of the Carbon Basin surface coal mine is not contingent upon obtaining a federal coal lease in the project area. Ark also has the ability to access private coal lands without BLM ROWs, although ROWs across federal land may be preferred by Arch, they are not required. However, BLM cannot deny Ark reasonable access necessary to develop its private property. For this reason, the No Action-No Mining Alternative is an alternative that would not be realized if chosen by the BLM AO and therefore is not a reasonable alternative.
2) The No Action-No Mining Alternative is not required to provide a baseline from which to compare other action alternatives. The CBCPA baseline levels of current activity and resource values are adequately described in Chapter 3.0 and in the existing disturbance description of the cumulative impact analysis. These baseline levels provide the BLM AO and the public with sufficient information from which to make an informed decision on which action alternative is preferred (baseline information has been added to Table 2.18a in the FEIS).
3) The No Action and the Proposed Action as presented stress the reliance and the connectivity of the private and federal coal and related mining actions. As presented, the two action alternatives establish reasonable scenarios to mine the available coal resources and develop logical mining units. The federal action cannot stand alone because the federal coal cannot be economically mined without the private holdings. The federal action is

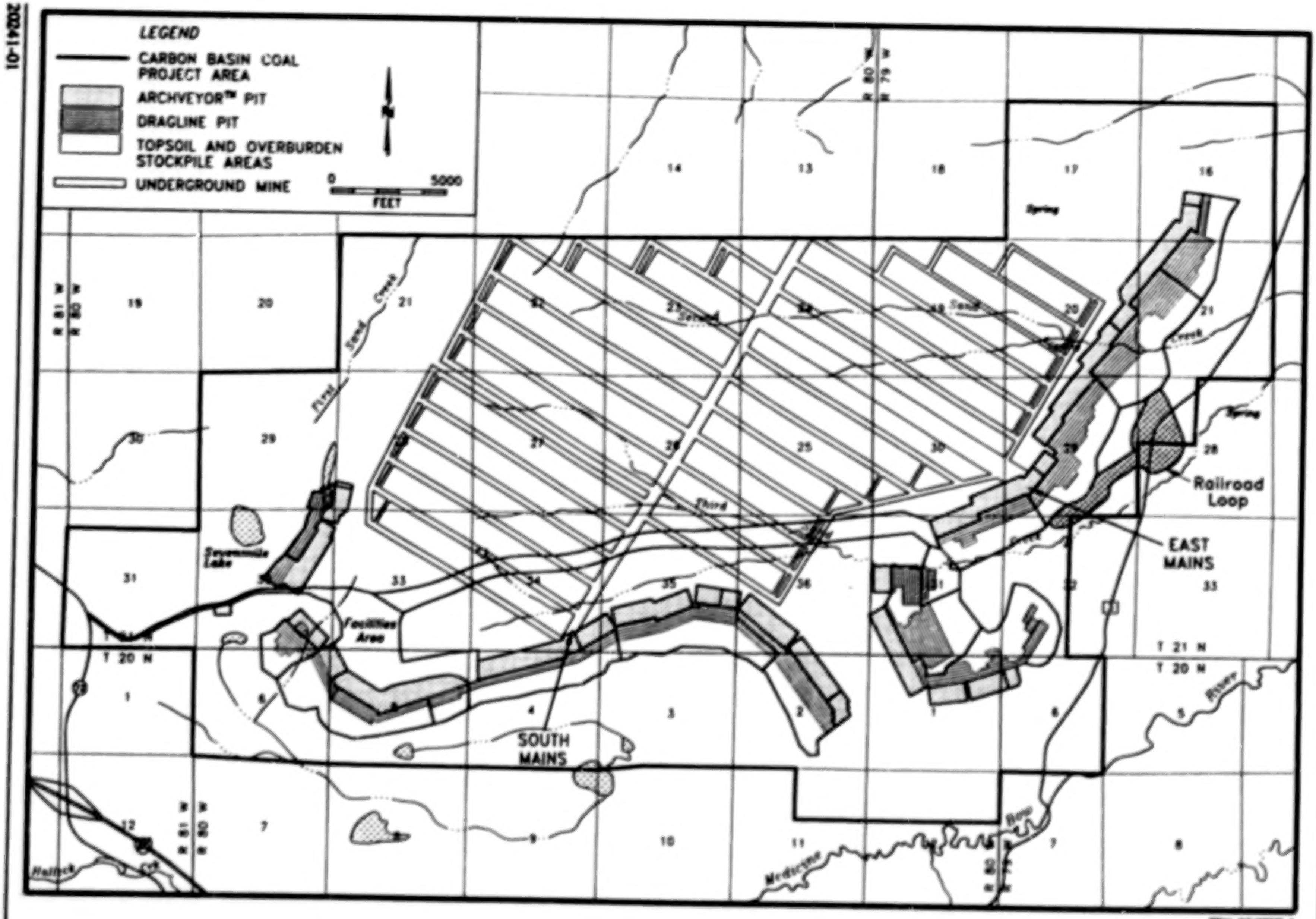

Figure 2.9 Generalized Mining Plan, Elk Mountain and Saddleback Hills Mines.

> inextricably connected to private mining actions, so the impacts of both federal and private actions are also connected. They are thus described as such so that the public and decision-makers are fully informed of the impacts of both the federal and private actions.

"BLM has analyzed the coal deposits in the project area to determine the most reasonable way to mine the coal. If the federal coal is not sold/leased and if the private coal is mined, then the federal coal located in these scattered parcels would be bypassed and no private underground coal would be mined. BLM's preferred alternative, therefore, is to lease the federal coal and to maximize the recovery of all other coal within the project area.

"The basis for the Proposed Action and No Action Alternatives is BLM's assumption that the private coal will be mined. This assumption is reasonable and true and, therefore, obviates the need for a No Action-No Mining Alternative."

2.5 SUMMARY OF ENVIRONMENTAL IMPACTS

Page 2-56, column 2, paragraph 3, line 4. Change "Table 2.18." to "Tables 2.18 and 2.18a."

Page 2-64, Table 2.18, Row 5, columns 1 and 5. Replace "0.75 mi" with "1.0 mi".

Page 2-68. After Table 2.18, insert Table 2.18a below.

Table 2.18a Baseline Conditions and Environmental Consequences of the No Action and Proposed Action Alternatives and Cumulative Project Impacts.

		Post-mitigation Impacts[1]		
Impact by Environmental Resource	**Baseline (no mining)**	**No Action**	**Proposed Action**	**Cumulative Project Impacts[2]**
		CLIMATE AND AIR QUALITY		
PM_{10}, NO_x, SO_x, VOC, CO, and CO_2 emissions would increase but remain within state and federal standards	Air quality is good; principal pollutants are particulates from natural sources, surface coal mines, highway construction, roads, and other activities; existing pollutant concentrations are as follows: TSP = 35 $\mu g/m^3$, PM_{10} = 18 $\mu g/m^3$, NO_x = 10 $\mu g/m^3$, SO_2 = 5 $\mu g/m^3$, and CO = 1,148 $\mu g/m^3$	LOM increases in dust and pollutant emissions within and adjacent to the CBCPA, but project would be in compliance with state and federal air quality standards	Emissions would be as follows: TSP = 126.73 $\mu g/m^3$, PM_{10} = 27.52 $\mu g/m^3$, NO_x = 12.25 $\mu g/m^3$, SO_2 = 5.24 $\mu g/m^3$, and CO = 1,153.93 $\mu g/m^3$	LOM increases in dust and pollutant emissions–up to 91.73 $\mu g/m^3$ increase in TSP, up to 9.52 $\mu g/m^3$ increase in PM_{10}, up to 0.24 $\mu g/m^3$ increase in SO_2, up to 225 $\mu g/m^3$ increase in NO_x, and 5.93 $\mu g/m^3$ increase in CO above ambient levels for the 24-year LOM[3]
		TOPOGRAPHY/PHYSIOGRAPHY		
Short- and long-term disruption of topography	Present impacts include approximately 159 acres of existing roads, abandoned surface mines, and an abandoned townsite	LOM landscape alterations including an overall lowering and flattening of the landscape; disturbance would be 3,270 acres; most disturbance would occur between 1999-2007	LOM landscape alterations of up to 1,626 acres more than No Action, resulting in up to 4,896 acres of total disturbance due to mine development and operation and an additional 2,426 acres affected due to subsidence; 124% more disturbance and 11 years longer than No Action	LOM landscape alterations of up to 4,896 acres of disturbance and an additional 7,065 acres affected by subsidence; 6,906 acres more than is presently disturbed; 24-year LOM
Alteration of surface drainages	No existing impacts	LOM local modifications to drainages but no regional impacts; total disturbance of 3,270 acres from 1999-2012	Same as No Action except that up to 1,686 acres (50%) more disturbance and 11 years longer than No Action	Same as No Action except that up to 4,737 acres more disturbance than presently exists in the CBCPA; 11-year LOM
Large-scale lowering of the land surface due to subsidence	Some potential for subsidence at abandoned underground coal mines	Little subsidence would occur due to Archveyor™ mining	8.5-10.0 ft of subsidence over approximately 7,322 acres; slight basin-and-ridge topography created	8.5-10.0 ft of subsidence over approximately 7,322 acres; slight basin-and-ridge topography created
		MINERALS/GAS AND OIL		
Localized temporary loss of access to oil and gas reserves	No present loss of access to oil and gas reserves	Localized temporary loss of access to oil and gas which could delay oil and gas development over 3,270 acres	Same as No Action except up to 1,686 acres (50%) more disturbance and 11 years longer than No Action	Same as No Action; up to 4,737 acres more disturbance than currently exists; 24-year LOM
Localized temporary loss of access to mineral reserves	No present loss of access to mineral reserves	No present interest in other mineral development in the CBCPA	Same as No Action	Same as No Action

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[1]		
		No Action	Proposed Action	Cumulative Project Impacts[2]
		MINERALS/GAS AND OIL (Continued)		
Bypass of unrecoverable or unleased coal	Bypass of 231.6 million tons of coal	Bypass of approximately 209.15 million tons of surface- and underground-minable coal; significant	An estimated 112.477 million tons of surface- and underground-minable coal would be unrecoverable and thus bypassed (46% less than No Action); exact amount to be disclosed in tract lease notice	An estimated 112.477 million tons of surface- and underground-minable coal would be unrecoverable and thus bypassed (51% less than if no coal is mined)
Permanent loss of coal resource	Resource would be available for future mining	Permanent loss of 22.45 million tons of coal; significant	Permanent loss of 119.12 million tons of coal; significant (430% more than No Action)	Permanent loss of 119.12 million tons of coal; significant
Future seismic exploration precluded in all replaced overburden and subsidence areas	Direct seismic tests limited only near abandoned underground mines	Approximately 1,728 acres would no longer be available for direct seismic tests; significant	Approximately 9,172 acres would no longer be available for direct seismic tests (7,444 acres more than No Action); significant	Approximately 7,322 acres would no longer be available for direct seismic tests
		GEOLOGIC HAZARDS		
Subsidence during and after mining	Potential for subsidence at existing abandoned coal mines	Little or no subsidence anticipated	8.5-10.0 ft of surface lowering over approximately 7,322 acres	8.5-10.0 ft of surface lowering over approximately 7,322 acres
Earthquake damage to facilities	No facilities present so no potential for damage	Facilities unlikely to be damaged due to earthquakes because earthquakes are unlikely	Same as No Action	Same as No Action
Flood damage to facilities	No facilities present so no potential for damage	Facilities unlikely to be damaged due to flooding because floods are unlikely	Same as No Action	Same as No Action
Landslides and slumping	Landslides possible but not likely	Possible landslides due to spoil placement on slide-prone areas	Same as No Action	Same as No Action
Reactivation of dunes due to ground cover removal	No active dunes in the CBCPA	Dunes not likely to be reactivated	Same as No Action	Same as No Action
Subsidence, gas, and fires associated with abandoned coal mines	Abandoned coal mines not affecting any facilities	Abandoned coal mines not expected to affect any facilities	Same as No Action	Same as No Action
Increased landslide potential due to snow redistribution	Slight potential for landslides	Little potential for increased landslides because there are few landslides in/adjacent to the CBCPA	Same as No Action	Same as No Action

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[1]		
		No Action	Proposed Action	Cumulative Project Impacts[2]
		PALEONTOLOGICAL RESOURCES		
Disturbance/destruction of important fossils	Inadvertent destruction of fossils due to existing activities (e.g., livestock grazing, roads) could be occurring	Little potential to destroy important fossils because preconstruction surveys have been/would be completed within the CBCPA; up to 3,270 acres of disturbance	Same as No Action except potential loss of 19 sites and up to 4,896 acres of disturbance (50% more than No Action)	Same as Proposed Action; disturbance and preconstruction surveys of up to 4,896 acres
Loss of important fossil materials due to private collection or vandalism	Little potential for unauthorized fossil collection	Little potential for unauthorized fossil collection	Same as No Action except the period of increased human activity would be 11 years longer than under the No Action Alternative. Preconstruction surveys of up to 4,896 acres	Same as Proposed Action; disturbance and preconstruction surveys of up to 4,896 acres
Discovery of previously unknown fossils	No potential for discovery of previously unknown fossils	Good potential to discover previously unknown (significant and nonsignificant) fossils during preconstruction surveys; preconstruction surveys of up to 3,270 acres	Same as No Action except the preconstruction survey area would be up to 50% larger; preconstruction surveys of up to 4,896 acres	Same as Proposed Action; disturbance and preconstruction surveys of up to 4,896 acres
		SOILS		
Mixing of physical and chemical properties	Approximately 159 acres of existing disturbance	Post-reclamation soils would be more uniform in color, texture, structure, depth, organic matter content, and chemical composition; up to 3,270 acres of disturbance	Same as No Action but area of effect would be up to 1,686 acres (50%) more	Post-reclamation soils would be more uniform in color, texture, structure, depth, organic matter content, and chemical composition; up to 4,896 acres of disturbance (4,737 acres more than are currently disturbed)
Disruption of soil biology	Approximately 159 acres of existing disturbance	Disruption of biologic activity; soil organic matter loss; and mortality of microbial populations, seeds, bulbs, and live plant parts; up to 3,270 acres of disturbance	Same as No Action but area of effect would be up to 1,686 acres (50%) more and effect would be longer in duration	Disruption of biologic activity; soil organic matter loss; and mortality of microbial populations, seeds, bulbs, and live plant parts; up to 4,896 acres of disturbance (4,737 acres more than are currently disturbed)
Soil loss via wind and water erosion	Present impacts due to livestock grazing, off-road-vehicle traffic, and other developments in the area	Soil loss via wind and water erosion, up to 3,270 acres of disturbance	Same as No Action, but area of effect would be up to 1,686 acres (50%) more and effect would be longer in duration	Up to 4,896 acres of disturbance (4,737 acres more than are currently disturbed)

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[1]		
		No Action	Proposed Action	Cumulative Project Impacts[2]
		SOILS (Continued)		
Changes in soil moisture and productivity due to snow redistribution	Snow distribution patterns effect soil moisture and productivity	Slight changes in soil moisture and productivity over the 3,270-acre disturbance area	Same as No Action except the area of influence would be up to 7,322 acres (4,052 acres more than No Action)	Same as Proposed Action; up to 7,322 acres affected
Sensitive soils difficult to reclaim	Existing disturbances in the CBCPA, except active roads, have been reclaimed	Anticipate sufficient mixing of sensitive soils with good soils such that no effects are anticipated	Same as No Action	Same as No Action
Soil compaction and decreased productivity	Present impacts due to livestock grazing, off-road-vehicle traffic, and other developments in the area	LOM decreased productivity in all disturbed areas	Same as No Action except overall disturbance would be 50% greater	Up to 4,896 acres of disturbance (4,737 acres more than are currently disturbed)
Contamination due to accidental hazardous material spills	There are no known spills in the CBCPA	LOM potential for localized spills within the CBCPA	Same as No Action	Same as No Action
		SURFACE WATER RESOURCES		
Potential for decreased water quality (i.e., increased turbidity, salinity, and sedimentation) in surface waters due to runoff from disturbed areas	Second and Third Sand Creek watersheds recommended for special management to prevent excess sedimentation in the Medicine Bow river	Surface water quality impacts not anticipated	Same as No Action	Same as No Action
Minor surface water loss	Existing uses (e.g., livestock watering, reservoirs) consume small amounts of surface water	Approximately 14 acre-ft per year of surface water loss due to evaporation from sediment ponds	Same as No Action	Same as No Action
Alteration of surface water runoff patterns due to planned diversions	No existing alterations of surface water runoff patterns	Surface drainage patterns would be altered for the LOM, but regional patterns would not be affected	Same as No Action	Same as No Action
Contamination of surface waters from accidental hazardous material spills	Little potential for surface water contamination	Surface water contamination from accidental spills unlikely	Same as No Action	Same as No Action
Indirect effects due to topographic changes	No indirect effects presently occurring	Increased infiltration, reduced runoff, reduced peak flows	Similar to, but greatly increased from, No Action because more subsidence would occur	Large scale (7,322 acres) indirect effects due to subsidence

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[1]		
		No Action	Proposed Action	Cumulative Project Impacts[2]
SURFACE WATER RESOURCES (Continued)				
Alterations in surface runoff patterns due to snow redistribution	Surface water runoff patterns slightly influenced by snow distribution	Changes in surface runoff patterns unlikely	Same as No Action	Same as No Action
GROUNDWATER RESOURCES				
Groundwater contamination due to accidental hazardous material spills	There is no known groundwater contamination from accidental hazardous material spills	Groundwater contamination from accidental spills unlikely	Same as No Action	Same as No Action
Direct groundwater consumption	Groundwater consumption would continue at present rate (currently, very little is used)	Consumption of up to 26,000 gallons/day	Consumption of up to 126,000 gallons/day; 100,000 gallons more than No Action and duration of impact would be 11 years greater	Consumption of up to 126,000 gal/day over the 21-year LOM
Indirect groundwater consumption	No indirect groundwater consumption at present	Groundwater loss via evaporation during coal seam dewatering	Same as No Action but duration of impact would be 11 years longer	Same as No Action for 21-year LOM
Aquifer removal and disruption	Aquifers intact	Removal/disruption of aquifers underlying approximately 3,270 acres within the CBCPA; change in aquifer permeability	Same as No Action but area of impact would be up to 7,322 acres; 4,052 acres than No Action	Removal/disruption of aquifers underlying approximately 7,322 acres; change in aquifer permeability
Drawdown effects on groundwater users	Groundwater users not affected by drawdown	No effects anticipated	Same as No Action	Same as No Action
Long-term reduction in groundwater quality	Groundwater quality is poor and would remain so	Postmine aquifers likely to have higher concentrations of calcium, sulfate, magnesium, manganese, and TDS than premining aquifers	Same as No Action	Same as No Action
ALLUVIAL VALLEY FLOORS				
Possible disruption of alluvial valley floors	No existing impacts	No impacts anticipated	Same as No Action	Same as No Action
NOISE				
Increased noise levels at the mine site and along transportation corridors	Current noise levels primarily due to wind and traffic	LOM noise levels increased, especially during surface mining, 24 hours per day; some residents may view the increased noise as a significant impact	Same as No Action but 11 years longer in duration; haul truck noise would be eliminated by 2005, so any significant impact would also be eliminated	LOM noise levels increased, especially during surface mining; 24 hours per day, 21-year LOM

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[1]		
		No Action	Proposed Action	Cumulative Project Impacts[2]
		NOISE (Continued)		
Increased noise levels at nearby residences and at the Conoco Station	Current noise levels primarily due to wind and traffic	No mine or blasting noise is likely to be heard; truck noise would be heard at the Conoco Station and by Elmo residents; some residents may view the increased noise as a significant impact	Same as No Action, except haul truck noise would be eliminated by 2005, so any significant impact would also be eliminated	Same as No Action, except haul truck noise would be eliminated by 2005
		ODOR		
Presence of offensive odors proximal to facilities and roads	Current odors primarily caused by dust and exhaust	LOM odors due to equipment exhaust and dust	Same as No Action but 11 years longer in duration	LOM odors due to equipment exhaust and dust; 24-year LOM
		ELECTRIC AND MAGNETIC FIELDS		
Adverse human health effects	Existing power lines not known to be causing adverse health effects	Adverse human health effects unlikely	Same as No Action	Same as No Action
Television (TV) or radio interference	Existing power lines not known to be causing interference	Interference unlikely	Same as No Action	Same as No Action
		VEGETATION		
Vegetation removal	Approximately 159 acres of disturbance from roads and abandoned surface mines	Up to 3,270 acres of vegetation removed	Up to 4,896 acres of vegetation removed; 50% more than No Action	Up to 4,896 acres of vegetation removed; 4,737 acres more than are currently disturbed
Changes in vegetation diversity following reclamation (i.e., shrubland to grassland)	Approximately 159 acres of disturbance from roads and abandoned surface mines	Short-term reduction in diversity and number of shrubs, but diversity and shrub reestablishment standards required by WDEQ, so no permanent impacts; up to 3,270 acres affected	Same as No Action except up to 4,896 acres affected; 50% more than No Action	Short-term reduction in diversity and number of shrubs; no permanent impacts; up to 4,896 acres affected (4,737 acres more than are currently disturbed), 24-year LOM and beyond
Changes in plant community composition due to snow redistribution	Plant community composition influenced by snow distribution	Potential for significant community changes at a local scale, but regional mosaic not expected to change; 3,270+ acres possibly affected; LOM and beyond	Same as No Action except up to 7,322 acres possibly affected	Same as Proposed Action; up to 7,322 acres possibly affected

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[a]		
		No Action	Proposed Action	Cumulative Project Impacts[b]
		VEGETATION (Continued)		
Temporary loss of vegetative productivity	Approximately 159 acres of disturbance from roads and abandoned surface mines	Short- and long-term loss of vegetative productivity due to vegetation removal and slow shrub establishment on reclaimed areas; up to 3,270 acres of disturbance	Same as No Action except area of effect would be up to 4,896 acres (50%) more than No Action	Short- and long-term loss of vegetative productivity due to vegetation removal and slow shrub establishment on reclaimed areas; up to 4,896 acres affected (4,737 acres more than are currently disturbed); 24-year LOM and beyond
Potential weed infestations	A few species of noxious weeds in the area	Possible weed infestations on areas disturbed by mine development and operation	Same as No Action except area of effect would be up to 4,896 acres; 50% more than for No Action	Possible weed infestations on areas disturbed by mine development and operations; 4,896 acres vulnerable; 24-year LOM and beyond
Wetland and riparian area loss	Minor impacts to wetlands and riparian areas due to livestock use	Short-term to LOM wetland and riparian area loss; approximately 2.0 acres lost; wetlands replaced acre-for-acre	Same as for No Action except approximately 2.0-9.0 acres lost, 0.0-9.0 acres more than for No Action; wetlands replaced acre-for-acre	Short-term to 24-year LOM wetland and riparian area loss; approximately 2.0-9.0 acres lost; wetlands replaced acre-for-acre
		WILDLIFE		
Loss of big game crucial winter range	Up to 159 acres of existing crucial winter range loss	Loss of up to 3,270 acres of pronghorn and up to 1,642 acres of mule deer crucial winter range; locally significant	Loss of up to 4,107 acres of pronghorn (26% more than No Action) and up to 1,700 acres of mule deer (4% more than No Action) crucial winter range; locally significant	Loss of up to 4,107 acres of pronghorn and 1,700 acres of mule deer crucial range (3,948 acres and 1,541 acres, respectively, more than is currently disturbed); locally significant
Big game displacement and/or stress	Minor impacts from roads, recreationists (especially hunters), ranching, and other activities	LOM displacement from actively mined and adjacent areas and transportation corridors	Same as No Action except overall disturbance would be up to 50% higher and 11 years longer in duration	24 year displacement from actively mined and adjacent areas and transportation corridors (up to 4,896 acres actively disturbed)
Overall wildlife habitat (i.e., small mammals, amphibians, and reptiles) degradation	Approximately 159 acres of existing habitat degradation	Up to 3,270 acres of habitat degradation for the LOM and beyond	Up to 4,896 acres of habitat degradation for the LOM and beyond; 50% more than No Action	Up to 4,896 acres of habitat degradation for the 24-year LOM and beyond; 4,737 acres more than are currently disturbed
Increased wildlife mortality from human activities	Little mortality occurs	LOM potential for mortality due to traffic and other hazards	Same as No Action but 11 years longer in duration	24 years of potential for direct mortality

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts/		
		No Action	**Proposed Action**	**Cumulative Project Impacts/**
		WILDLIFE (Continued)		
Avian mortality due to collisions with haul trucks or power lines	Little potential for avian mortality due to collisions	LOM potential for avian mortality; direct mortality would constitute an illegal take and thus would be significant	Same as No Action but 11 years longer in duration; significant	24 years of potential for direct mortality
Loss of sage grouse breeding, nesting, and wintering habitat	Up to 159 acres of these habitats lost due to existing developments	Loss of 123 and 2,759 acres of breeding and nesting/ wintering habitat, respectively; significant	Loss of up to 139 and 3,602 acres of breeding and nesting/wintering habitat, respectively (13% and 31% more than for No Action); significant	Loss of up to 139 and 3,602 acres of breeding and nesting/wintering habitat, LOM and beyond; up to 3,443 acres more than are currently disturbed; significant
Loss of mountain plover foraging, breeding, and nesting habitat	Up to 159 acres of mountain plover habitat lost due to existing developments	Loss of 187 acres of mountain plover foraging, breeding, and nesting habitat; significant	Same as No Action except 238 acres would be disturbed due to mining (a 28% increase over No Action); significant	Loss of 238 acres of mountain plover habitat for 23-year LOM; significant
Depletion of surface waters resulting in fish population reductions	Minor surface water depletions occurring due to current uses	An estimated 14 acre-ft/yr surface water would be lost due to evaporation from sediment ponds, 2000-2007	Same as No Action except duration would be 2000-2020	Same as No Action except duration would be 2000-2020
Habitat alteration due to snow redistribution patterns	Habitat influenced by snow distribution patterns	3,270+ acres potentially affected due to changes in snow accumulation patterns; LOM and beyond	Same as No Action except 4,896+ acres potentially affected	Same as Proposed Action
Raptor nest taking	No raptor nests proposed for taking	Up to 13 nests taken	Up to 14 nests taken	Up to 14 nests taken
Raptor nest disturbance due to human activity within 1.0 mi of nest	Some disturbance occurring due to current uses/activities	Up to 47 nests potentially affected	Up to 49 nests potentially affected; 4% more than No Action	Up to 49 nests potentially affected
		THREATENED AND ENDANGERED SPECIES/STATE SENSITIVE SPECIES		
Mortality or disturbance of any listed or candidate T&E species or disturbance of critical habitat for listed and candidate T&E species	Low potential for any listed or candidate species; minor loss and degradation of habitat from current activities/ developments	Low potential for bald eagle, peregrine falcon, swift fox, and black-footed ferret mortality; moderate potential for mountain plover mortality; LOM and beyond loss and degradation of habitat for these species; significant	Same as No Action except that overall habitat loss/degradation would be greater; significant	Low potential for bald eagle, peregrine falcon, swift fox, and black-footed ferret mortality; moderate potential for mountain plover mortality; 24-year LOM and beyond loss and degradation of habitat for these species; significant

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[1] No Action	Proposed Action	Cumulative Project Impacts[2]
THREATENED AND ENDANGERED SPECIES/STATE SENSITIVE SPECIES (Continued)				
Reduction in sensitive species due to mortality or habitat loss/degradation	Low potential for sensitive species mortality or habitat loss/degradation	LOM potential for sensitive species mortality and habitat loss/degradation	Same as No Action except that habitat loss/degradation would be greater	24-year LOM potential for sensitive species mortality and habitat loss/degradation
Destruction of TEC&S plant species or their habitat	Loss of TEC&S species unlikely	Loss of TEC&S plant species and their habitat is unlikely	Same as No Action	Same as No Action
CULTURAL RESOURCES				
Disturbance/destruction of important sites	Inadvertent loss/destruction of cultural resources from current activities/developments	10 cultural resource sites would be lost during mine development and operation but appropriate data would be collected prior to mine development	Loss of 29 cultural resource sites (19 more than No Action)	Loss of 29 cultural resource sites
Loss of important cultural materials due to private collection or vandalism	Loss due to unauthorized collection or vandalism unlikely	Loss due to unauthorized collection or vandalism is unlikely	Same as No Action	Same as No Action
Disturbance of important Native American religious or culturally significant sites	Disturbance of important Native American sites unlikely	Disturbance of important Native American sites unlikely	Same as No Action	Same as No Action
SOCIOECONOMICS				
Increased employment	Loss of employment for approximately 90 Arch employees with closure of Medicine Bow and Seminoe II mines	LOM-increased employment but loss of employment after 2007; significant and beneficial until 2007	LOM-increased employment for 21 years; significant and beneficial until 2020	Same as Proposed Action
Increased population	Decrease in population as displaced workers leave to find work	Population increase unlikely	Same as No Action	Same as No Action
Increased demand for temporary housing	Presently occupied houses may be vacated	Additional demand for temporary housing unlikely	Same as No Action	Same as No Action
Increased demand for school services	Schools may close	Increased demand for school services would not increase appreciably	Same as No Action	Same as No Action
Increase in tax revenue and royalties and stimulation of local economy	No increased revenue and loss of mineral royalty as mines and businesses close	LOM-increased federal, state, and local revenues; significant and beneficial	Same as No Action but 11 years longer in duration; significant and beneficial	Increased federal, state, and local revenues, 21-year LOM

Table 2.18a (Continued)

Impact by Environmental Resource	**Baseline (no mining)**	**Post-mitigation Impacts[1]**		
		No Action	**Proposed Action**	**Cumulative Project Impacts[2]**
SOCIOECONOMICS (Continued)				
Increased demand for local government facilities or services	Decreased demand	Additional demand for local government facilities and services would not increase appreciably but would be extended approximately 13 years	Slight increased demand for local government facilities and services would be extended approximately 20 years	Same as Proposed Action
Disruption or change of character of communities	Significant disruption of Hanna's community as people leave to find work	Disruption/change of community character unlikely; community life would be extended approximately 13 years	Same as No Action except community life would be extended approximately 21 years	Disruption/change of community character unlikely; community life would be extended approximately 21 years
Increased traffic and demands on local highways and other roads; increased accidents	Decreased traffic and accidents	LOM-increased traffic by mine employees commuting to and from work and from construction equipment and over-the-road haul trucks	Same as No Action except that over-the-road haul truck traffic would continue through 2005 instead of 2007	LOM increased traffic by mine employees commuting to and from work, from construction equipment, and from haul truck traffic, 2000-2005
LAND USE				
Reduction of AUMs for livestock	No reductions anticipated	LOM loss of up to 166 AUMs	LOM loss of up to 181 AUMs; 9% more than No Action	24-year loss of up to 181 AUMS
Potential degradation of Highway 72	Degradation would continue, more or less, at current rates	Potential for significant degradation if Highway 72 is not upgraded	Same as No Action	Same as No Action
Reduced property values at the N/S Livestock Company and Johnson Ranches	No reduction in property values	Reduced property values at the N/S Livestock Company and Johnson Ranches; significant	Same as No Action	Same as No Action
Loss of forage due to fires started by mine and transportation equipment	No mine-related fires would occur	Any fires would be suppressed immediately so forage loss would be minimal	Same as No Action	Same as No Action
Localized temporary loss of access to mineral reserves	Access to mineral reserves would not be affected	No present interest in other mineral development in the CBCPA	Same as No Action	Same as No Action
Localized temporary loss of access to oil and gas reserves	Access to oil and gas reserves would not be affected	Oil and gas development would be hindered but not necessarily curtailed by mine development and operation	Same as No Action but disturbance due to mine development and operations and subsidence would be increased by up to 4,052 acres and would be 11 years longer in duration; access to reserves outside CBCPA could be hindered by the transportation corridors	Disturbance due to mine development and operations and subsidence would be up to 7,322 acres for the LOM and beyond

Table 2.18a (Continued)

Impact by Environmental Resource	Baseline (no mining)	Post-mitigation Impacts[1]		
		No Action	Proposed Action	Cumulative Project Impacts[2]
		LAND USE (Continued)		
Changes in character and recreational uses of the area due to construction, presence of facilities, noise, dust, odor, and increased human activities	Character and recreational use of the area may change as the population declines due to emigration	LOM loss of recreational opportunities in the CBCPA	Same as No Action except 11 years longer in duration	24-year loss of recreational opportunities within and adjacent to the CBCPA
Infringement on prior rights	No infringement on prior rights known to be occurring	Prior rights would be observed for the LOM	Same as No Action	Same as No Action
		VISUAL RESOURCES		
Modification in the basic elements (form, line, color, or texture) of visual resources by presence of facilities and equipment	Present visual impacts (e.g., roads, power lines, pipelines) would remain	LOM and beyond modification of visual characteristics for viewers in the mine vicinity; constant aesthetic degradation at the N/S Livestock Company and Johnson Ranches; significant; generally not visible from I-80 or Highway 72	Same as No Action except there would be additional visual impacts from the transportation corridors; significant	Same as Proposed Action; significant
		HAZARDOUS MATERIALS		
Soil, surface water, and groundwater contamination and wildlife exposure	No contamination or exposure known to occur in the CBCPA	Contamination and exposure unlikely for the LOM and beyond	Same as No Action	Same as No Action

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[1] All impacts are not significant unless otherwise stated.

[2] Cumulative project impacts show the effects of mining both federal and nonfederal coal reserves compared with baseline conditions. This comparison does not represent the effects of the federal action alone since the location of the federal coal reserves are such that they cannot be mined without the private coal. This comparison also does not represent the total cumulative impacts that could result from this project plus other projects in the area—these are described in Chapter 4.0.

[3] 24-year LOM includes reclamation from 2021-2023. 21-year LOM includes mining only, from 2000-2020. 11-year LOM refers to surface mining only.

3.0 AFFECTED ENVIRONMENT

3.1.2 Air Quality

Page 3-2, column 2, paragraph 1, line 2. Replace "Although the State of Wyoming manages the Savage Run Wilderness as a Class I wilderness, it is not a federally mandated PSD Class I area (i.e., it has not been designated Class I by congress and thus legally does not have to be managed as a Class I area) (BLM 1995a), and the state is not proposing to apply for a federal Class I designation (personal communication, June 1998, with Darla Potter, WDEQ)." with "Although the Savage Run Wilderness Area is not a federally mandated PSD Class I area, it has the legal requirement to be managed as a Class I area through the Wyoming Air Quality Standards and Regulations."

Page 3-2, column 2, paragraph 2, line 3. Replace "Chapter I, Section 22(j)" with "Chapter I, Section 21(f)(iv)".

3.1.3 Topography/Physiography

Page 3-5. Replace "Figure 3.2" with "Figure 3.2" on the next page.

3.1.5.4 Locatable Minerals

Page 3-7, column 1, paragraph 3, line 4. Replace "Harris et al. 1985" with "Harris 1996".

Page 3-7, column 1. After paragraph 3 add "The Hanna Formation coals in the Carbon Basin contain uranium with a mean value of 3.9 parts per million (Glass et al. 1980). Trace element analyses completed for two cores drilled in the CBCPA confirm the presence of uranium in Hanna Formation coals (personal communication, November 1998, with Bob Janssen, BLM). However, the amounts are small and not economically recoverable, so this resource is not addressed further."

3.1.5.5 Salable Minerals

Page 3-7, column 2, paragraph 1, line 10. Replace "Harris and Meyer 1986" with "Harris 1996".

3.2.1.1 Vegetation Communities

Page 3-24, column 2, paragraph 1, line 1. Replace "Appendix A" with "Appendix B".

3.2.1.3 Wetlands

Page 3-28, column 1, paragraph 3. At the beginning of the paragraph add "Under Executive Order 11990 (May 24, 1977), federal agencies are directed to take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial value of wetlands when carrying out programs that affect land use. It is the BLM's policy to protect all wetlands, whether determined to be jurisdictional or functional located on BLM-administered surface."

3.2.2.1 Big Game/Other Mammals

Page 3-30, column 1, paragraph 2, line 15. After "(WGFD 1997a)." add "Other factors contributing to the decline of the pronghorn herd include range and highway fences, land uses such as oil and gas development and coal mining, and habitat modifications (personal communication, October 1998, with Steve Facciani, WGFD)."

Page 3-32, Table 3.14, Elk, Snowy Range Herd. Replace "4,900" with "6,000". Replace "7,000" with "6,000[1]", add footnote 1 "[1] 1997 posthunt population.", and after "Wildlife Management Coordinator, WGFD" add "and personal communication, October 1998, with Steve Facciani, Deputy Director, WGFD."

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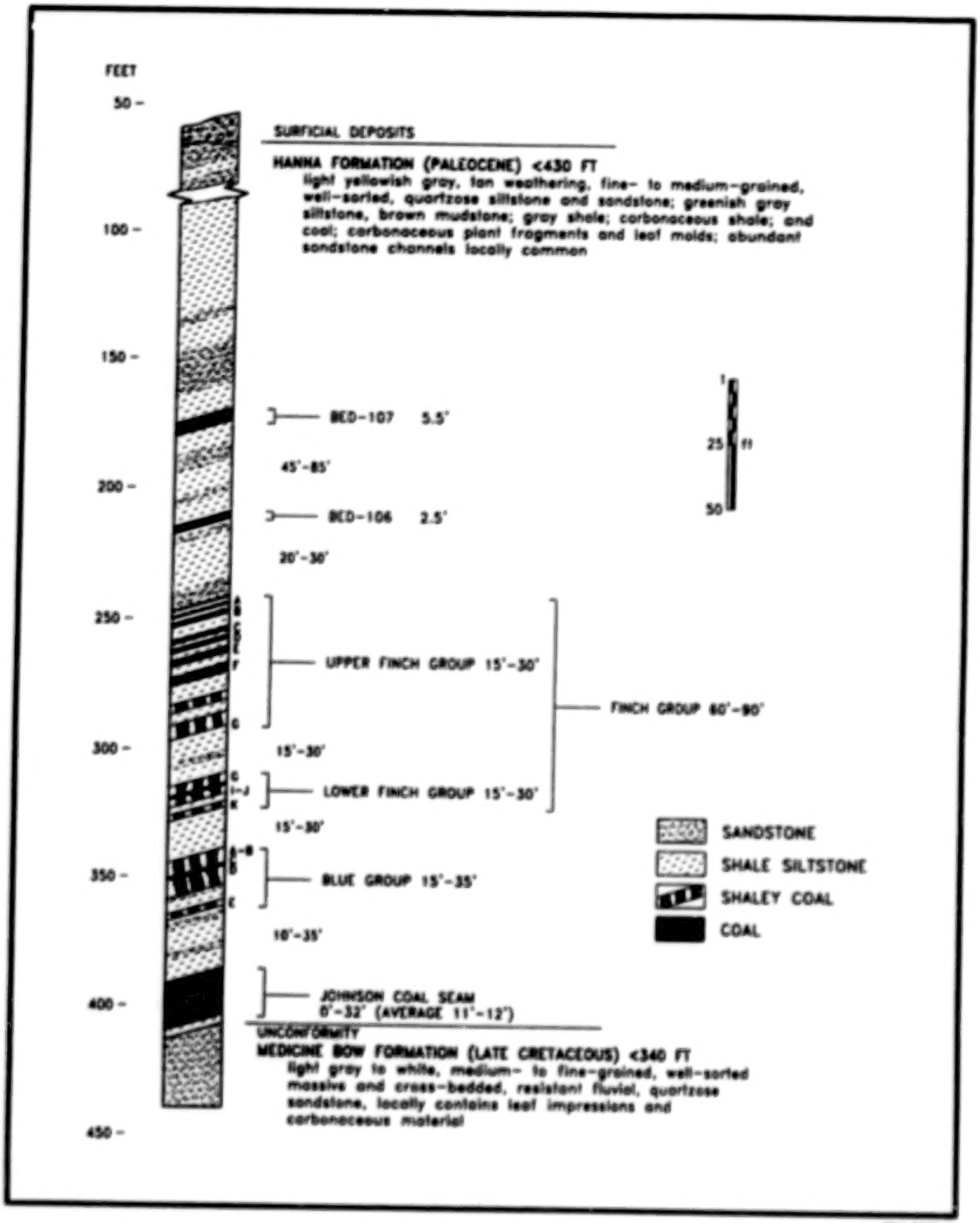
FEET
50 -
100 -
150 -
200 -
250 -
300 -
350 -
400 -
450 -
SURFICIAL DEPOSITS
HANNA FORMATION (PALEOCENE) <430 FT
light yellowish gray, tan weathering, fine- to medium-grained, well-sorted, quartzose siltstone and sandstone; greenish gray siltstone, brown mudstone; gray shale; carbonaceous shale; and coal; carbonaceous plant fragments and leaf molds; abundant sandstone channels locally common
BED-107 5.5'
45'-85'
BED-106 2.5'
20'-30'
A
B
C
D
E
F
G
UPPER FINCH GROUP 15'-30'
15'-30'
G
I-J
K
LOWER FINCH GROUP 15'-30'
FINCH GROUP 60'-90'
15'-30'
A-B
D
E
BLUE GROUP 15'-35'
10'-35'
JOHNSON COAL SEAM
0'-32' (AVERAGE 11'-12')
UNCONFORMITY
MEDICINE BOW FORMATION (LATE CRETACEOUS) <340 FT
light gray to white, medium- to fine-grained, well-sorted massive and cross-bedded, resistant fluvial, quartzose sandstone, locally contains leaf impressions and carbonaceous material
1
25 ft
50
SANDSTONE
SHALE SILTSTONE
SHALEY COAL
COAL

Figure 3.2 Stratigraphy of the Hanna Formation (Morrison-Knudsen Company, Inc. 1983).

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Page 3-33, Table 3.15, footnote 1. After "raptor" insert "nesting and foraging".

Page 3-36, column 1, paragraph 3, line 5. Replace "4,900 animals, and the estimated 1996 posthunt population was approximately 7,000 elk or 143% of objective" with "6,000 animals, and the estimated 1997 posthunt population was near the objective".

Page 3-36, column 2, paragraph 3, line 1. Replace "Predator" with "Carnivore".

3.2.2.2 Birds

Page 3-39, column 2, paragraph 2. Add "Since many raptor species are known to nest within and adjacent to the CBCPA, the entire CBCPA is, for the purposes of this analysis, considered suitable nesting habitat." to the end of the paragraph.

Page 3-44, column 1, paragraph 3, line 3. Replace "(28%)" with "(78%)".

Page 3-44, column 2. After paragraph 1 insert the following sentence as a paragraph: "Sage grouse populations have been declining throughout the range of the species for a number of reasons, including (but not necessarily limited to) reduction in amount and quality of habitat from human activities and possibly from natural succession and reduced predator control (Braun et al. 1977; Call n.d.; Klebenow 1969)."

3.2.2.4 Fisheries

Page 3-46, column 2, paragraph 2, line 9. Replace "brook trout" with "Iowa darter, fathead minnow, emerald shiner, bigmouth shiner".

Page 3-46, column 2, paragraph 2, line 12. Replace "silver shiner" with "sand shiner".

3.2.3.1 Wildlife

Page 3-47, column 1, paragraph 3, line 4. Replace "1996" with "1996a".

3.2.3.2 Plants

Page 3-56, column 2, paragraph 3, line 5. Replace "70" with "79".

3.5.3 Recreation

Page 3-65, column 2. After paragraph 2, insert the following paragraph: "Access to federal land within the CBCPA is limited by the checkerboard landownership pattern, and only 320 acres are legally accessible. Portions of Sections 28 and 32, T.21 N., R.79 W. are accessible via County Road 3.

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4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Page 4-2, column 2, paragraph 2, line 15. After "Mountain;" add "Interstate 80;".

Page 4-2, column 2, paragraph 3, line 8. Delete ", big game,". Line 12. Delete the sentence "Big game cumulative impacts were analyzed for each herd unit area." The big game cumulative impact analysis area was the CIAA shown on Figure 4.1, page 4-3, in the DEIS.

Page 4-4, Table 4.1, Mines. Replace "Edison Development Co." with "Energy Development Company".

4.1.1 Climate

Page 4-5, column 2. After paragraph 1, insert the following paragraphs.

"Direct impacts on snow accumulation patterns resulting from mining would include increased snow accumulation and localized snowdrifts formed by structures (e.g., spoil piles, buildings, railroad) and snow drifts/berms caused by snow-plowing operations on roads. The size of a drift formed by a solid three-dimensional rectangular object (e.g., buildings) varies with its height and width (Tabler and Associates 1994; Tabler 1986). A key-hole shaped bare area would extend downwind of such objects, bordered by wing-shaped drifts that would extend for considerable distances downwind. Total mass of snow stored in these drifts would represent only a small fraction of the total snow transport across the project area.

"If roads are properly designed and maintained as described below, service/haul roads would have little effect on snow redistribution. Potentially significant impacts would occur if roads are improperly designed and maintained. Slow-moving snow removal equipment, such as graders, could form berms along the roadside that would be traps for blowing snow; these drifts typically grow rapidly as subsequent snow removal operations increase their height. Because snow particles freeze together, disturbed snow hardens and thus becomes resistant to wind erosion. Roads would be elevated above the surrounding terrain, wherever possible, so that wind would keep roads relatively free from snow accumulation. Wing-type plowing equipment, which typically prevents berm formation, would be used wherever feasible.

"Drift caused by spoil piles, buildings, and other facilities could obstruct vehicular traffic on downwind roads. Substantial snow accumulation may occur both upwind and downwind from chain-link fences (such as those used to fence substations), which may affect traffic on adjacent roads.

"Indirect impacts would occur due to the effects of snow distributions on geologic hazards (see Section 4.1.5), soils (see Section 4.1.7), hydrology (see Section 4.1.8), vegetation (see Section 4.2.1), and wildlife (see Section 4.2.2)."

4.1.2.2 Near-field Modeling

Page 4-14, column 1. After paragraph 1, insert the following paragraph: "Model results also show that pollutant concentrations would be within current WAAQS and NAAQS at a distance of 656 or less ft from the haul route. The towns of Hanna and Elmo are approximately 5,000 ft and 660 ft, respectively, from the proposed haul route, so no adverse health effects to the residents of these towns would occur due to degraded air quality. Residents may notice a slight reduction in air quality, which could be annoying to some residents."

4.1.2.4 Cumulative Impacts

Page 4-14, column 1, paragraph 3. Replace the entire paragraph with the following paragraph: "The CIAA for air quality was defined, using WDEQ guidelines, as the area within which PM_{10} concentrations were 5 $\mu g/m^3$ or greater over a 24-hour period and 1 $\mu g/m^3$ or greater annually. Near-field modeling results were used to define these areas, shown on Figures 4.5 and 4.6,

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respectively. Based on WDEQ requirements, all pollution sources, including the proposed mine, within these boundaries must be identified and included in the analysis of cumulative impacts. No large pollutant sources are known to exist within these areas, so no cumulative effects (as defined by WDEQ regulations) are anticipated."

Pages 4-15 and 4-16, Figures 4.5 and 4.6. Replace with Figures 4.5 and 4.6 on the next page. "Figure 4.5 Air Quality CIAA - 24-hour PM_{10} Emissions." "Figure 4.6 Air Quality CIAA - Annual PM_{10}."

4.1.4.2 Proposed Action and Transportation Options 1-10

Page 4-22, column 2, paragraph 4, line 7. Replace "2,488" with "4,107".

4.1.5.1 No Action Alternative

Page 4-24, column 2, paragraph 3, line 10. After "possible." insert "Additional mine-caused snow accumulation in landslide areas could cause landslides during spring snowmelt."

4.1.6.2 Proposed Action

Page 4-28, column 1, paragraph 3, line 4. Replace "859" with "837".

4.1.7.1 No Action Alternative

Page 4-30, column 2, paragraph 3. After the third bullet, add the following bullet:

"• reduced or increased soil productivity or erosion due to snow redistribution;"

Page 4-31, column 1. After paragraph 3 add the following paragraph: "*Reduced or Increased Soil Productivity Due to Snow Redistribution.* Snow accumulation caused by mine facilities could have beneficial or adverse effects on soils. Beneficial impacts would occur where melting drifts enhance soil moisture thereby increasing soil productivity and reducing the potential for wind erosion. Adverse effects would occur if soils on slopes become saturated due to melting drifts and slope movements or piping cause accelerated erosion. Adverse effects would also occur if soil moisture in the early growing season becomes high enough to preclude growth by certain species (e.g., big sagebrush)."

4.1.7.2 Proposed Action

Page 4-31, column 2, paragraph 4, line 2. Replace "859" with "837".

Page 4-31, column 2, paragraph 5, line 5. After "No Action Alternative." insert the following sentence: "Snow is likely to accumulate on the leeward side of the railroad grade and to blow free of the windward side, creating elevated and reduced moisture conditions, respectively."

Page 4-32, column 1. After paragraph 1, insert the following paragraph: "Roads would be designed to prevent snow accumulation, and wing-type plows would be used to prevent berm formation adjacent to roads. Therefore, haul road construction and operation is not likely to affect soils during the 5 years of altered snow distribution patterns. Railroad effects would be as described for transportation options 1-3."

Page 4-32, column 1. After paragraph 2, insert the following paragraph: "Snow would likely accumulate along the conveyor, which would cause increased soil moisture and productivity in drift areas, although too much moisture could inhibit growth by some species (e.g., big sagebrush). In steep areas, the enhanced soil moisture may cause accelerated water erosion. Railroad effects would be as described for transportation options 1-3."

Page 4-32, column 2, paragraph 1, line 2. After "remain for the LOM." insert "Effects of haul road and conveyor operation on snow distribution patterns would be as described for transportation options 4-6 and 7-8, respectively."

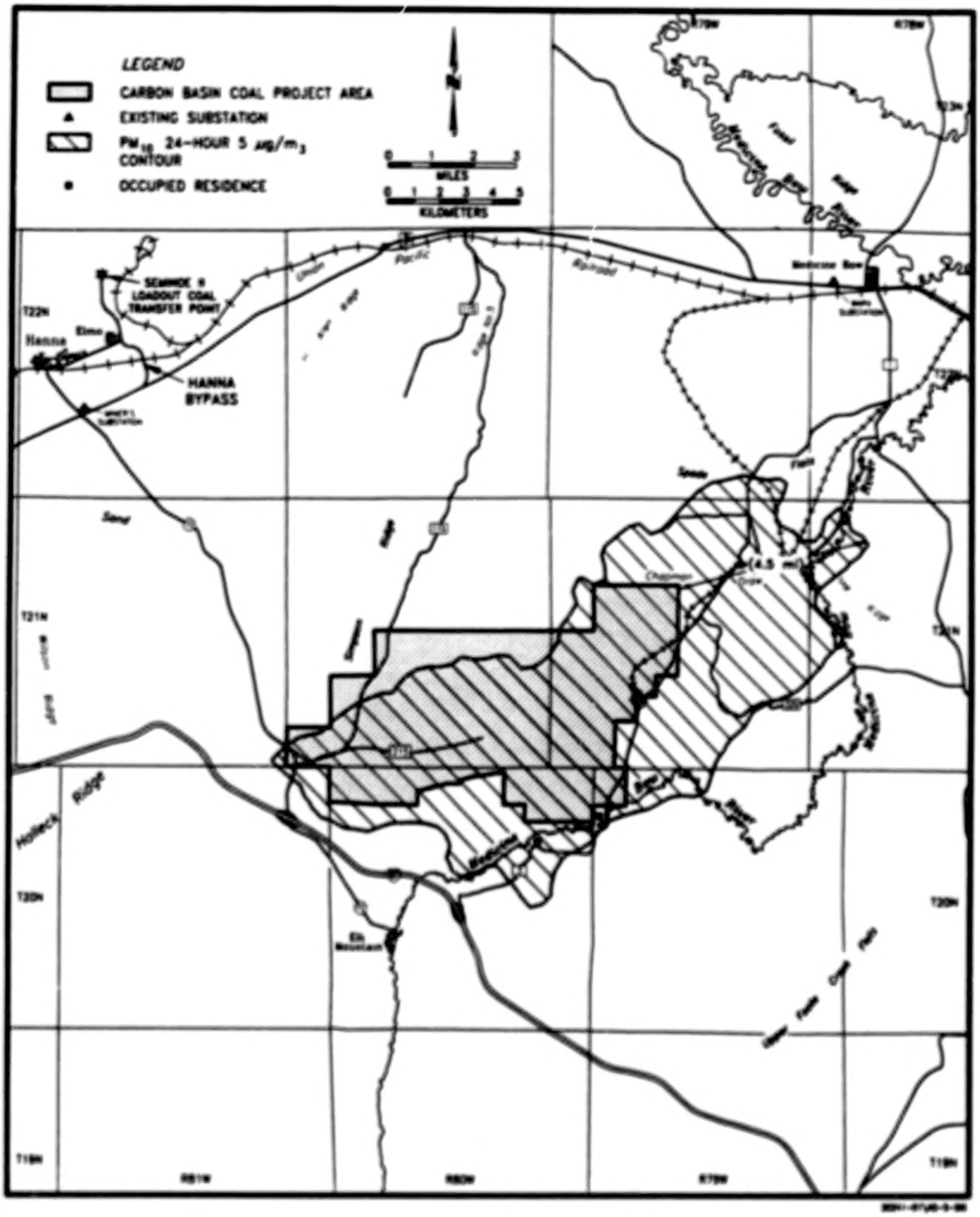

Figure 4.5 Air Quality CIAA - 24-hour PM$_{10}$ Emissions.

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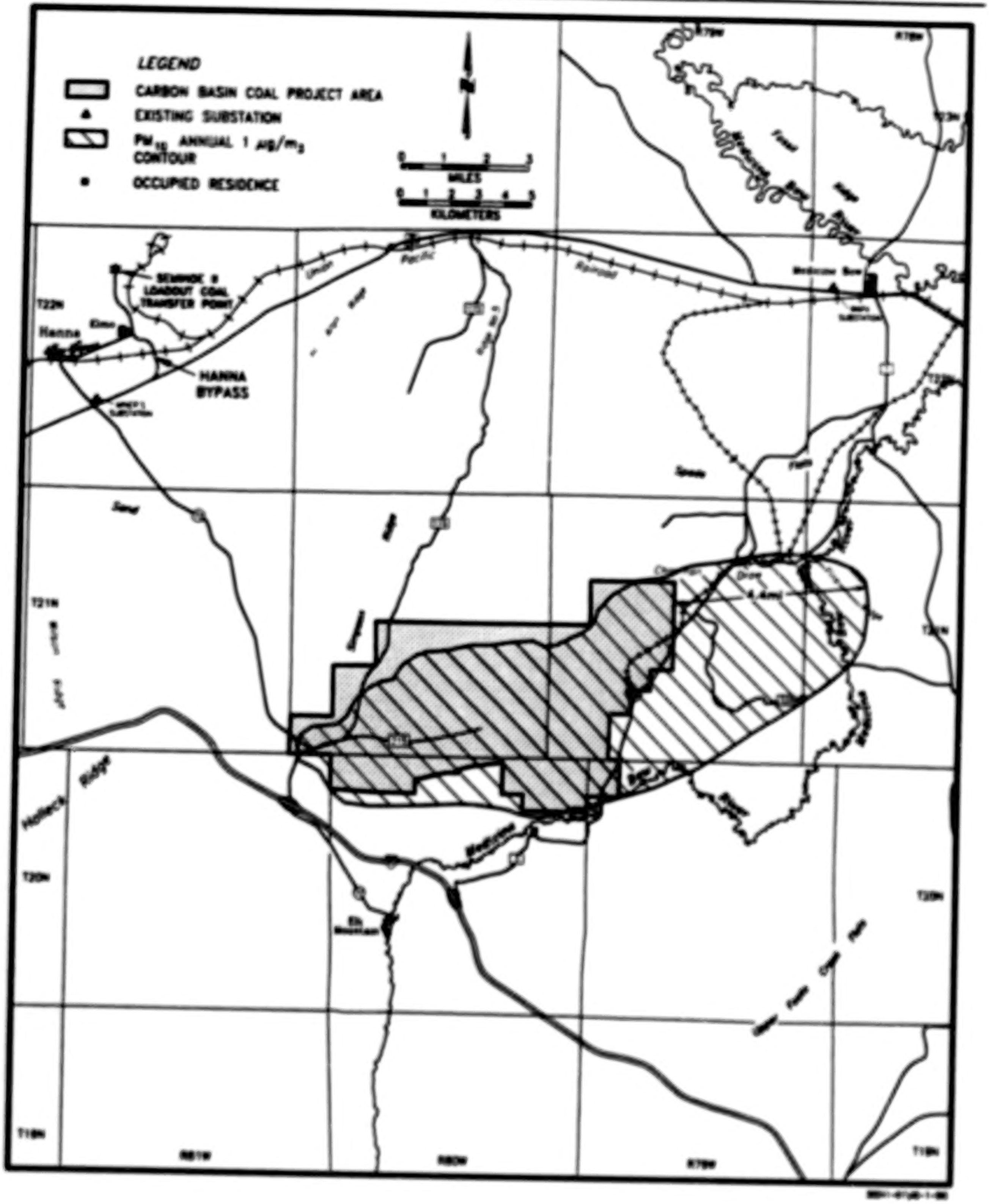

Figure 4.6 Air Quality CIAA - Annual PM_{10} Emissions.

4.1.8.1 Surface Water

Page 4-34, column 2, paragraph 2, line 11. Replace "an estimated 35 acre-ft per year of surface water would be lost via evaporation which is 0.027% of the average annual flow in the Medicine Bow River. Because this is a small proportion of the total flow in the regional system, no downstream users would be impacted by this loss." with "an estimated 14 acre-ft per year of surface water would be lost via evaporation which is 0.011% of the average annual flow in the Medicine Bow River. Because this is a small proportion of the total flow in the Medicine Bow River, minimum flows would be maintained and no downstream users would be impacted by this loss."

Page 4-35, column 1, paragraph 1, line 2. Replace "Mitigation for depletions is discussed in Section 5.1.13." with "Mitigation for depletions would be conducted in accordance with the Final Biological Opinion on Minor Water Depletions to the Platte River System and the Cooperative Agreement between the states of Wyoming, Nebraska, and Colorado, and the Secretary of the Interior dated July 1997."

Page 4-35, column 1, paragraph 5, line 2. After "to topographic changes" insert "and snow redistribution."

Page 4-35, column 2, paragraph 1, line 5. After "Bow River." insert "Snow redistribution caused by mine facilities could affect the local surface hydrology, but impacts would not be significant. Snow accumulation areas would be sources for additional spring runoff which could cause channel or gully development, ponding, or increased overland flow. Surface runoff patterns also could be affected if facilities prevent or reduce deposition in natural snow accumulation areas. Changes in snow accumulation and spring runoff patterns would not affect local surface water quality because all flow from the mine would be contained in evaporation/sedimentation ponds and discharged in accordance with Arch's NPDES permit."

Page 4-36, column 1, paragraph 1, line 6. After "Chapman Draw." insert "Snow accumulation on the leeward side of the railroad grade could cause increased runoff during snowmelt (increased runoff quantities and higher or lower quality, depending on the sediment load entrained by the runoff) but impacts would not be significant."

Page 4-36, column 1, paragraph 2, line 19. After "anticipated." insert "If roads are properly designed and snow-removal procedures are used that prevent formation of roadside snowdrifts, no surface water impacts would result from these transportation options. If berms are allowed to form, roadside spring runoff would increase slightly, and surface water quality may be higher or lower, depending on the amount of sediment entrained by the runoff. Impacts from railroad construction and operation would be as described for transportation options 1-3."

Page 4-36, column 2, paragraph 1, line 8. After "anticipated." insert "Snow that accumulates along the conveyor would contribute to a local increase in spring runoff, the quality of which would depend on the amount of sediment carried. Impacts from railroad construction and operation would be as described for transportation options 1-3."

Page 4-36, column 2, paragraph 2, line 12. After "No Action Alternative." insert "Impacts to surface water quantity and quality due to haul road and conveyor construction would be as described for transportation options 4-6 and 7-8, respectively.

4.2.1.1 Plant Communities

Page 4-45, column 2. After paragraph 1, insert the following paragraphs.

"Tree loss would be minimized by routing power line and transportation corridors to avoid trees, where feasible. Performance standards (see Section 5.1.2.10) state that trees and vegetation may be cleared only for the essential width necessary to maintain slope stability and to serve traffic needs. Loss of trees would be handled in accordance with the WDEQ-approved reclamation plan.

"Snow redistribution also may affect plant community distribution. In areas where snow accumulates, soil moisture may be greater but soil temperatures may be colder later into spring, thus favoring species adapted to more mesic, cooler habitats. Conversely, a reduction in drifting in natural snow accumulation areas would shift species composition towards species favoring xeric habitats. Shifts in species composition may be significant in localized areas, but the postmining vegetation mosaic would be similar to the premining mosaic (as required by WDEQ) and thus area-wide effects would not be significant."

4.2.1.2 Wetlands

Page 4-48, column 1. Prior to paragraph 2, add the following paragraphs.

"Jurisdictional wetlands are those wetlands under the regulatory overview of the U.S. Army Corps of Engineers and must meet specific requirements relating to vegetation, soils, and hydrology. All other types of wetlands are functional wetlands. In addition to mitigation requirements for jurisdictional wetlands, the BLM's policy is to protect all wetlands located on BLM-administered surface. On those areas where BLM owns the coal and the surface is privately owned, the BLM would discuss wetland protection with the surface owner.

"Prior to disturbance, all wetlands within the CBCPA, whether jurisdictional or functional, will be delineated by the lessee. If wetlands are discovered on any lands leased for federal coal during these surveys, the lessee will contact the BLM to determine the action to take to either 1) protect or 2) restore the value of these areas after mining to ensure no net loss of wetlands."

4.2.2 Wildlife and Fisheries

Page 4-51, column 2, paragraph 1, line 2. After "mountain plover." add "In accordance with WDEQ regulations, wildlife habitat would be one of the postmining land uses."

4.2.2.1 No Action Alternative

Page 4-51, column 2. After paragraph 2, add the following paragraphs.

"Winter or winter/yearlong crucial winter range is very important to pronghorn (Guenzel 1986), mule deer (Mackie and Pac 1980; Carpenter and Wallmo 1981; Olson 1992), and elk (Adams 1982) populations in that it provides relief and survival opportunities during periods of adverse weather. For all three of these species, snow depth and condition is the primary factor governing use of crucial range (Gilbert et al. 1975; Bruns 1977; Yoakum 1978; Carpenter and Wallmo 1981; Adams 1982; Nelson and Leege 1982; Rudd 1982; Skovlin 1982; Guenzel 1986; Oedekoven and Lindzey 1987). The energy costs of locomotion for a particular big game species are dramatically elevated in snow depths above front knee height (Parker et al. 1984). Melt-freeze and wind crusts that form on the surface of accumulated snow can prevent access to underlying vegetation (Carpenter and Wallmo 1981). It is likely that snow accumulation patterns in the mine vicinity would change as a result of spoil piles, buildings, and other facilities, although the extent of these changes is not known. Drift formation in undisturbed crucial winter range would further reduce the amount of this important range type to pronghorn and mule deer. Big game moving though crucial and other range types may encounter areas of drifted snow that could impede movement. These drifts probably would not be extensive, unless they occur along roads, and big game could easily move around them. Local habitat changes may occur (over many years) due to increased soil moisture from mine-induced snowdrifts, and too much moisture in big sagebrush habitat may cause the elimination of big sagebrush.

"Another factor that may have long-term effects on crucial winter range is postmining topography, which is expected to be smooth and rolling, without some of the ridges and valleys that currently exist. Ridge removal would reduce an important component of crucial winter range available to big game animals. Snow redistribution is also strongly influenced by topography because snow is deposited in sheltered areas (such as the leeward side of ridges or hills and behind shrubs) and removed from exposed areas (such as hill tops or open plains or between shrubs). By creating a smoother postmine topography and removing shrubs, reclaimed areas would be prone to blowing free of snow which: 1) may increase the amount of herbaceous forage that is exposed during winter, 2) may decrease the potential for shrub establishment due to area-wide exposure (and thus desiccation) to wind and sun, and 3) may cause snow to be deposited downwind thereby causing permanent losses of winter range capability adjacent to the mined area. So, in addition to forage removal from direct disturbance, there would be permanent effects due to the changed topography. Mitigation would be developed during permit preparation, and if crucial winter range is a designated postmine land use, WGFD would be consulted, and the effects of topography on various components of crucial habitat would be considered."

Page 4-53, column 1, paragraph 1, line 3. Replace "1996" with "1996a".

Page 4-53, column 1, paragraph 1, line 4. After "important to pronghorn (e.g., sagebrush)" add "(Reeve 1984)."

Page 4-53, column 1, paragraph 2, line 10. After "harassed" add "(Reeve 1984; Yeo et al. 1984)".

Page 4-53, column 1, paragraph 3, line 3. After "areas of increased use." insert "Displacement of pronghorn onto surrounding private lands could increase damage complaints from landowners to the WGFD."

Page 4-53, column 2, paragraph 2, line 22. Replace "1996" with "1996a".

Page 4-54, column 1, paragraph 3, line 3. After "areas of increased use." insert "Displacement of mule deer onto surrounding private lands could increase damage complaints from landowners to the WGFD."

Page 4-55, column 2, paragraph 1, line 1. Replace "An additional 18 raptor species are known to occur or have the potential to occur within the CBCPA" with "An additional 18 raptor species are known to occur or have the potential to occur within and adjacent to the CBCPA, including the nearby Hanna RCA".

Page 4-55, column 2, paragraph 1, line 27. After "No Action Alternative." add "MacLaren (1985) demonstrated that some raptor species in this area (e.g., prairie falcons) require very specific nesting substrates, whereas other species (e.g., ferruginous hawk) will nest on a variety of features. Displacement from the mine development area would thus have a greater effect on some species."

Page 4-55, column 2, paragraph 1, line 34. After "regional raptor population" insert "(i.e., the assemblage of raptors that utilize habitat within and adjacent to the CBCPA)".

Page 4-56, column 1, paragraph 1, line 17. After "associated with coal transportation." add "The Hanna RCA would be traversed by over-the-highway haul trucks, thereby increasing the potential for vehicle-bird collisions for the 11-year LOM. It is also possible that raptors within the Hanna RCA would be displaced further from the highway due to additional traffic, although in a study that included portions of the CBCPA, MacLaren (1985) found that 77% of raptors nested within sight of road. Because of the proliferation of ranch roads and two-tracks, raptors in this area may habituate to traffic."

Page 4-56, column 1, paragraph 1, line 40. After "disturbed." begin a new paragraph with the following sentence. "The policy established by the BLM Rawlins Field Office is to require a 0.75-mi buffer zone between active raptor nests and human activity; however, mitigation presented in the BA for this project recommends that construction and disturbance within 1.0 mi of an active raptor nest would be avoided, if possible, from February 1 through July 31." Continue paragraph with "Federal and state permits ..."

4.2.2.2 Proposed Action

Page 4-59, column 2, paragraph 2, line 18. After "(Table 4.16)." add "Over-the-highway haulage through the Hanna RCA would occur for 5 years, rather than the 11 years under the No Action Alternative, thereby reducing the amount of time raptors would be exposed to potential collisions with haul trucks and other mine-related vehicles. Raptors may or may not be displaced from the road due to the additional traffic (MacLaren 1985)."

Page 4-59, column 2, paragraph 3, line 15. After "(Table 4.16)." add "Haul road A would traverse approximately 6 mi within the Hanna RCA, resulting in 145 acres of disturbance. About 4.4 mi (107 acres) of haul road B would be located within the Hanna RCA. Operation of either route may or may not cause birds to be displaced from adjacent habitat (MacLaren 1985). Haul truck traffic (23-136 trips per day) would be reduced compared with the No Action Alternative (180-436 trips per day) so the potential for vehicle-bird collisions would be lower."

Page 4-60, column 1, paragraph 1, line 14. After "(Table 4.16)." add "Approximately 5.6 mi (34 acres) of conveyor A would be located in the Hanna RCA; 1.2 mi (7 acres) of conveyor B would be within the RCA. The conveyor may displace raptors from adjacent habitat, but because the conveyor would be a fixed entity, birds may habituate to it and thus loss of habitat due to displacement could be lower than that for over-the-highway or haul truck options. There would be a minimal amount of pick-up truck traffic along conveyor routes. The potential for direct mortality would be greatly reduced compared with the truck-haulage options."

Page 4-62, column 1, paragraph 1, line 13. After "(Table 4.16)." add "Transportation options 9 and 10 are not likely to directly affect raptors in the Hanna RCA."

4.2.3.1 No Action Alternative

Page 4-65, column 1. After paragraph 3, insert the following paragraph. "Potential indirect impacts to bald eagles as a result of the No Action Alternative would be loss of available prey (i.e., birds, small mammals), to the extent that prey would be excluded or displaced from the CBCPA, and loss or disturbance of approximately 3,270-4,896 acres of potential foraging habitat until surface-disturbed areas are restored and reclaimed. Bald eagle use of the CBCPA is infrequent—they were not observed on the CBCPA during any of the biological surveys conducted in 1997—and the area to be disturbed does not provide aquatic habitat or large quantities of carrion that are the primary food sources for nesting bald eagles. Therefore, while bald eagles may be displaced from the CBCPA due to human activities, effects would not be significant."

Page 4-65, column 2. After paragraph 2, insert the following paragraph. "Potential indirect impacts to peregrine falcons would be loss of potential prey (i.e., birds, waterfowl, and small mammals), to the extent that prey species would be excluded or displaced from the CBCPA, and loss or disturbance of approximately 3,270-4,896 acres of foraging habitat until surface-disturbed areas are restored and reclaimed. Several peregrine falcons were observed during the 1997 spring migration, and individuals were reported hunting in and flying through the Simpson Ridge and Foote Creek Rim areas adjacent to the CBCPA. The Medicine Bow River and several ponds within the CBCPA provide a source of potential waterfowl and shorebird prey. Human activity at the mine may cause peregrine falcons to be displaced from the mine area. However, because the areas to be disturbed do not support concentrated prey for peregrine falcons and because they range widely while foraging (so adjacent habitats would be available), indirect effects would not be significant."

Page 4-65, column 2. After paragraph 3, insert the following paragraph. "None of the Ute ladies' tresses' habitat in and adjacent to the CBCPA is proposed for disturbance under the No Action or Proposed Action Alternatives; therefore, this species would not be impacted by mine development and operation. In the unlikely event that Arch would need to disturb Ute ladies' tresses' habitat, surveys would be conducted. Similarly, the approved transportation corridor(s) would be surveyed for this species and its habitat prior to disturbance. If any individuals are discovered, mitigation (preferably avoidance) would be developed in consultation with the USFWS."

Page 4-66, column 2, paragraph 3, line 9. After "bats are highly mobile and" insert "may be".

Page 4-66, column 2, paragraph 3, line 11. After "CBCPA" add ", if such suitable habitat is available".

Page 4-67, column 1, paragraph 3, line 5. After "habitat" insert "likely".

Page 4-67, column 2, paragraph 1, line 9. After "foraging habitat" insert "likely".

Page 4-68, column 1, paragraph 1, line 3. Replace "therefore, if destruction of a known nest was necessary, formal consultation and a take permit issued by USFWS would be required." with "therefore, if take of burrowing owls or their nests appears likely, Arch would apply to the USFWS for a take permit."

4.5.1.3 Recreation

Page 4-78, column 2. After paragraph 3, add the following paragraph. "Additionally, areas located away from active mining but within the same hunt areas occupied by the mine may experience increased use by hunters unwilling to hunt near the mine. An increased concentration of hunters may reduce the hunt quality for some hunters. However, since hunters would not be excluded from Ark's private lands, impacts to hunting opportunities would be minimal."

4.5.2.1 Agriculture/Rangeland

Page 4-79, column 1, paragraph 2, line 11. After "and state land." add "The 357 AUMs (181 AUMs average) accounts for all AUMs available from all ownerships within the CBCPA. The west pasture of the North Anschutz allotment, which occupies only a portion of the CBCPA and is the only area of use to which the N/S Livestock Company's federal privileges are attached, contains 1,652 AUMs on private/state land and 681 AUMs on federal land. Of the 681 federal AUMs, 455 are attached to the N/S Livestock Company's federal permit and 226 are attached to the Johnson Ranches federal permit. Of the 357 AUMs to be disturbed by mining in the west pasture, it is estimated that only 23 federal AUMs would be unavailable due to disturbance of federal surface. Of this 23 federal AUMs, 15 would be unavailable to the N/S Livestock Company (3% of federal permit) and 8 (3.5% of federal permit in the west pasture) would be unavailable to the Johnson Ranches. The loss in AUMs may vary depending on placement of fences to protect reclamation or to keep livestock off haul roads. Fourteen federal AUMs would also be unavailable to the Johnson Ranches in the remainder of the North Anschutz allotment as a result of surface disturbance."

5.0 MITIGATION AND MONITORING

Page 5-30. Add a new section as follows.

"5.4 APPLICANT-COMMITTED PRACTICES

"Arch has committed to implementing the following mitigation measures, above-and-beyond those specified in the previous sections.

"1) If the conveyor is chosen as a transportation alternative, Arch would conduct a crossing study, and if additional mitigation is required, it would be developed based on study results.

"2) Wing-type snow removal equipment would be used, where feasible, to prevent or minimize snow accumulation along roads."

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6.0 CONSULTATION AND PREPARERS

Page 6-2. Under "Wyoming Game and Fish Department" add "Steve Facciani, Deputy Director".

Page 6-4. Under "TRC Mariah Associates Inc." add "Peter Guernsey; M.S. Rangeland Ecology, B.S. Biology, 16 years professional experience; Quality Assurance".

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7.0 REFERENCES, ACRONYMS, ABBREVIATIONS, AND GLOSSARY

7.1 REFERENCES

Page 7-1. Add "Adams, A.W. 1982. Migration. Pages 301-321 *In* J.W. Thomas and D.E. Toweill (eds.), Elk of North America: Ecology and Management. A Wildlife Management Institute Book, Stackpole Books, Harrisburg, Pennsylvania. 698 pp."

Page 7-1. Under Avian Power Line Interaction Committee, add "_____. 1996. Suggested practices for raptor protection on power lines: The State of the Art in 1996. Edison Electric Institute/Raptor Research Foundation, Washington, D.C."

Page 7-1. Add "Bruns, E.H. 1977. Winter behavior of pronghorns in relation to habitat. Journal of Wildlife Management 41(3):560-571."

Page 7-3. Under Call, M.W., add "_____. n.d. Habitat requirements and management recommendations for sage grouse. U.S. Department of the Interior, Bureau of Land Management Technical Note. 37 pp."

Page 7-3. Add "Carpenter, L.H., and O.C. Wallmo. 1981. Rocky Mountain and Intermountain Habitats. Part 2. Habitat evaluation and management. Pages 387-421 *In* O.C. Wallmo (ed.), Mule Deer and Black-tailed Deer of North America, Wildlife Management Institute, University of Nebraska Press, Lincoln. 605 pp."

Page 7-4. Add "Council on Environmental Quality. 1997. Considering cumulative effects under the National Environmental Policy Act. 64 pp + append."

Page 7-7. Replace references to Harris et al. (1985) and Harris and Meyer (1986) with "Harris, R.E. 1996. Industrial minerals and construction materials map of Wyoming. Wyoming State Geological Survey. Map Series 47."

Page 7-7. Add "Intergovernmental panel on climate change. 1995. Climate Change 1995: IPCC Second Assessment Report. IPCC Secretariat. World Meteorological Organization, Geneva, Switzerland. http://www.ipcc.ch/"

Page 7-7. Under Intermountain Resources, Inc. replace "1996" with "1996a".

Page 7-7. Under Intermountain Resources, Inc. add "_____. 1996b. Energy Development Company, Permit 334-T2. Final reclamation bond release study on new law areas, 1995-1996. Prepared for Arch of Wyoming, Hanna. 35 pp. + append."

Page 7-8. Add "Johnson, T.B., and R.B. Spicer. 1981. Mountain plovers on the New Mexico-Arizona border. Continental Birdlife 2(3):69-73."

Page 7-8. Add "Klebenow, D.A. 1969. Sage grouse nesting and brood habitat in Idaho. Journal of Wildlife Management Volume 33(3):649-662."

Page 7-9. Add "Mackie, R.J., and D.F. Pac. 1980. Deer and subdivisions in the Bridger Mountains, Montana. Proceedings, Western Association of Fish and Wildlife Agencies 1980:517-526."

Page 7-9. Add "MacLaren, P.A. 1985. Resource partitioning in an assemblage of breeding raptors from southeastern Wyoming. M.S. Thesis, Department of Zoology and Physiology, University of Wyoming, Laramie. 64 pp."

Page 7-9. Add "Nelson, J.R., and T.A. Leege. 1982. Nutritional requirements and food habits. Pages 323-367 *In* J.W. Thomas and D.E. Toweill (eds.), Elk of North America: Ecology and Management. A Wildlife Management Institute Book, Stackpole Books, Harrisburg, Pennsylvania. 698 pp."

Page 7-10. Add "Olendorff, R.R., and R.N. Lehman. 1986. Raptor collisions with utility lines: an analysis using subjective field observations. Pacific Gas and Electric Co., San Ramon, California. 73 pp."

Page 7-10. Add "Olson, R. 1992. Mule deer habitat requirements and management in Wyoming. Departments of Range Management and Agricultural Economics, College of Agriculture, University of Wyoming, Laramie, Wyoming. Report B-965. 15 pp."

Page 7-10. Add "Parker, K.L., C.T. Robbins, and T.A. Hanley. 1984. Energy expenditures for locomotion by mule deer and elk. Journal of Wildlife Management 48(2):474-488.

Page 7-10. Add "Reeve, A.F. 1984. Environmental influences on male pronghorn home rand and pronghorn behavior. Ph.D. Thesis, Department of Zoology and Physiology, University of Wyoming, Laramie. 155 pp."

Page 7-10. Add "Rudd, W.J. 1982. Elk migrations and movements in relation to weather and hunting in the Absaroka Mountains, Wyoming. M.S. Thesis, Department of Zoology and Physiology, University of Wyoming, Laramie. 238 pp."

Page 7-11. Add "Skovlin, J.M. 1982. Habitat requirements and evaluations. Pages 369-413 *In* J.W. Thomas and D.E. Toweill (eds.), Elk of North America: Ecology and Management. A Wildlife Management Institute Book, Stackpole Books, Harrisburg, Pennsylvania. 698 pp."

Page 7-12. Add "Tabler, R.D. 1986. Snow fence handbook, release 1.0. Tabler and Associates, Laramie, Wyoming. 169 pp."

Page 7-12. Add "Tabler and Associates. 1994. Effect of proposed wind energy project on snow distribution at Foote Creek Rim. Report prepared for Mariah Associates, Inc. by Tabler and Associates, Niwot, Colorado. 56 pp."

Page 7-13. Under U.S. Fish and Wildlife Service, replace "1996" with "1996a".

Page 7-13. Under U.S. Fish and Wildlife Service, add "_____. 1996b. Final biological opinion on minor water depletions to the Platte River system. Memorandum to Assistant Regional Directors (Colorado, Kansas, Nebraska, Utah, Montana, and Wyoming) from the Regional Director, Region 6, Denver Colorado. June 13, 1996."

Page 7-16. Add "Yeo, J., A.F. Reeve, P.A. MacLaren, and A.L. Travsky. 1984. Medicine Bow Wind Energy Project Wildlife Studies: Final Report. Wyoming Game and Fish Department, Cheyenne, and University of Wyoming, Laramie. 151 pp."

7.3 GLOSSARY

Page 7-24. Add "**Jurisdictional wetlands** defined by 33 CFR 328.1 and .2 as those wetlands which are within the extent of ACE regulatory overview and must contain three components: hydric soils, a dominance of hydrophytic plants, and wetland hydrology."

Page 7-30. Add "**Wetlands** Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

8.0 COMMENTS AND RESPONSES ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

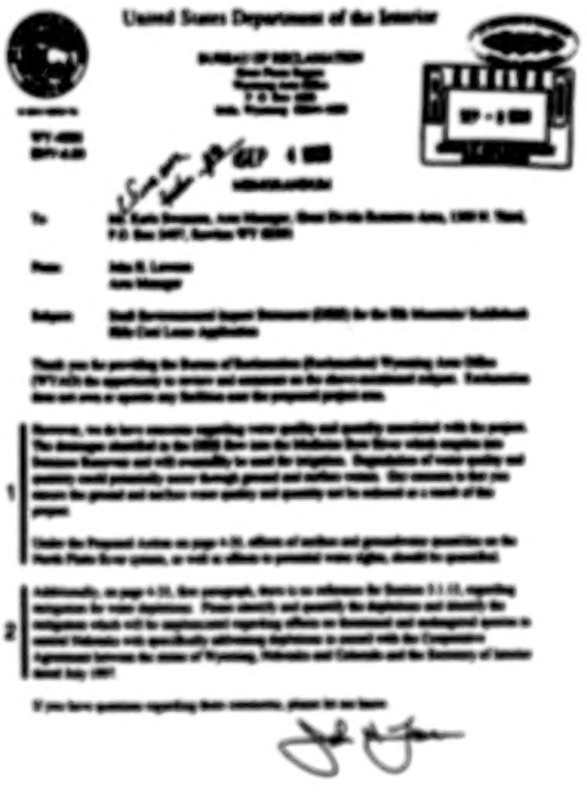
All commentors - Thank you for taking time to review the DEIS and providing your comments.

General Response - Thank you for your comments.

A. Rawlins Chamber of Commerce

Rawlins-Carbon County Chamber of Commerce

B. Bureau of Reclamation



United States Department of the Interior

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Response to Comment B1 - As noted on pages 4-33 and 4-34 in the DEIS, mine development and operation are not likely to impact water quality in the Medicine Bow River. Prior to mine development, a permit application would be submitted to the WDEQ, who would approve all designs for diversion ditches, culvert crossings, and sediment/evaporation ponds, to ensure that there would be minimized effects to downstream water quality and quantity. In addition, Arch would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit under the *Clean Water Act of 1977*, which regulates discharge of pollutants into navigable waters. Please refer to Section 5.1.2.9 in the DEIS for the performance standards that Arch must meet to protect surface waters while conducting coal mining operations in the State of Wyoming.

Groundwater use and degradation within the Carbon Basin would not cause declines in surface water quality in the Medicine Bow River for two reasons. First, formations in the Carbon Basin are separated from broad regional aquifers by a layer of semi-impervious Lewis Shale, which essentially eliminates any hydraulic connection between the Carbon Basin aquifers and alluvium along the Medicine Bow River and surface waters in the North Platte river system. Secondly, the Carbon Basin is a closed basin in which groundwater flows toward the center of the basin.

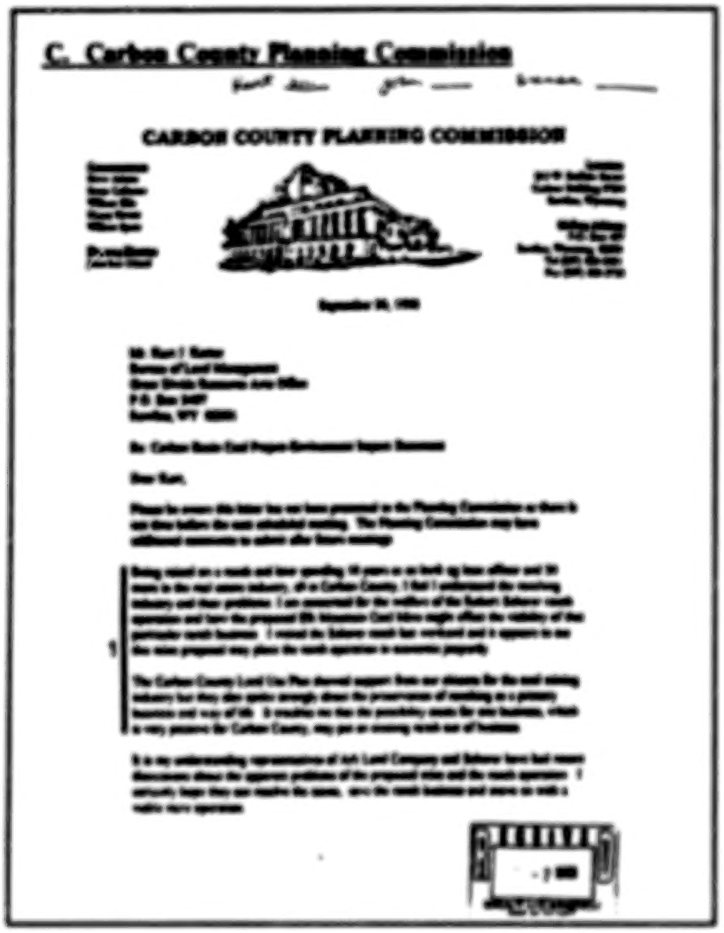
Surface water quantity impacts are discussed on page 4-33 to 4-37 in the DEIS. Surface water quality and user impacts are discussed above and in Section 4.1.7.1 in the DEIS. Effects on groundwater users are discussed in Section 4.1.8.2 in the DEIS.

Response to Comment B2 - In the DEIS, depletion estimates were made using a worst-case scenario that each of the 13 proposed sediment/evaporation ponds would be full year-round. Assuming a net annual evaporation rate of 2.75 feet (Martner 1986) over the surface area (12.9 acres) of the 13 ponds, an estimated 35 acre-feet of water per year would evaporate. The underlying assumption, that all 13 ponds would be full year-round is not realistic for several reasons.

- DEQ requires that sediment/evaporation ponds be discharged as soon as water quality meets the required discharge standards, which usually occurs within 2 weeks of a precipitation event. According to Arch, ponds could contain water for up to 180 days per year.
- The construction sequence for ponds would be determined during permitting, but, according to Arch, it is likely that a maximum of 10 ponds would be operational at any given time. Ponds would be constructed and reclaimed as mining progresses. Since the total surface water acreage of 13 ponds would be 12.9 acres, the surface acreage of 10 ponds would be an estimated 9.9 acres.
- No ponds would be allowed to become bankfull because DEQ requires that sufficient freeboard is maintained to contain a 10-year 24-hour storm. Because the ponds would never be full, the surface area would be less than 12.9 acres.

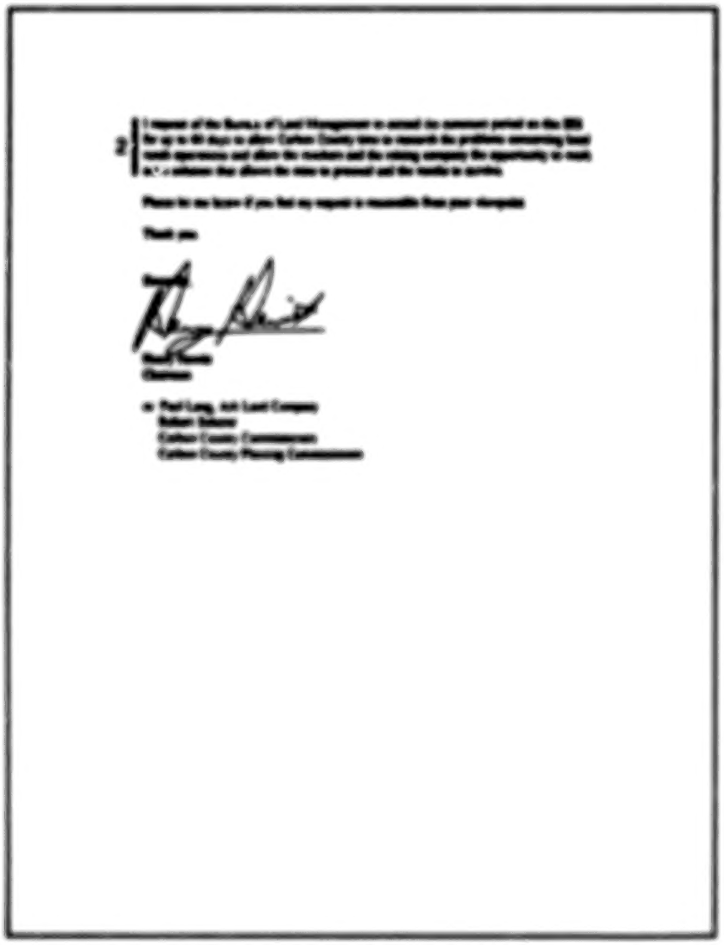
A more realistic, but still conservative, scenario for estimating annual evaporation would be to assume 10 ponds contain water for 180 days per year. Annual evaporation would be 1.375 ft over 9.9 acres, so annual evaporation loss would be approximately 14 acre-feet.

These losses would be mitigated in accordance with the Final Biological Opinion on Minor Water Depletions to the North Platte River System and the Cooperative Agreement between the States of Wyoming, Nebraska, and Colorado and the Secretary of Interior, dated July 1997, which requires the payment to the USFWS for each acre-foot of depletion or replacement of the lost water. The reference on page 4-35, first paragraph, to Section 5.1.13 has been deleted.



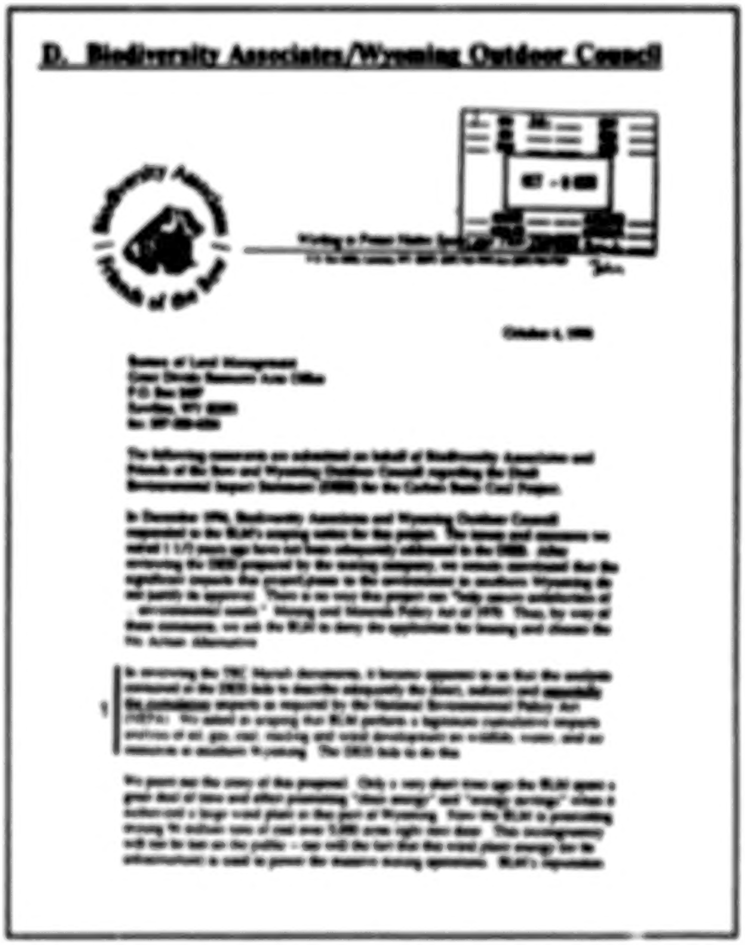
C. Carbon County Planning Commission

CARBON COUNTY PLANNING COMMISSION



Response to Comment C1 - See comment response N5.

Response to Comment C2 - The comment period was not extended as requested because the outcome of any negotiations between Ark Land Company and the N/S Livestock Company (Scherer Ranch) would not have changed the analysis as presented in the DEIS. Additional detail is provided in comment response N5.



D. Biodiversity Associates/Wyoming Outdoor Council

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Response to Comment D1 - The CEQ's (1997) guidance titled *Considering Cumulative Effects under the National Environmental Policy Act* states that cumulative effects may be thought of as the spacial and temporal crowding of environmental perturbations which do not allow the environment to rebound from one perturbation before another occurs. Eventually the crowding creates an environment that is not sustainable and thus could result in severe and unacceptable adverse effects on the human environment.

Based on this concept, it is not necessary to define southern Wyoming as the cumulative impact analysis area (CIAA) for wildlife, water, and air resources for the following reasons.

1) There is little interchange between the big game in the herd management units in southwestern Wyoming and the herds that overlap with the CBCPA; therefore, there is no spatial crowding that would cause cumulative impacts. Other mammals, as well as reptiles and amphibians, occupy smaller home ranges than big game and thus are even less likely to be cumulatively effected by other developments in southern Wyoming. Birds, especially larger birds, may be cumulatively affected by activities outside the CIAA, but because these species are affected by a myriad of developments throughout the western hemisphere, development of an appropriate CIAA was based on BLM's perceived area of effect adjacent to or related to the Proposed Action and alternatives (CEQ 1997). As stated in Section 4.2.3.4 in the DEIS, there would be an overall decline in some aspects of habitat for these species.

2) Because of the technology employed to protect water resources, site-specific impacts are virtually eliminated and thus cumulative effects would be minimal. The Platte River watershed is extensively monitored and mitigations are implemented to maintain water quality and quantity specifically for T&E species, so measurable cumulative effects are not permissible (see for example the Final Biological Opinion on Minor Depletions in the Platte River System [USFWS 1996]). BLM is one of many entities that require developments to conform with stipulations that ensure that water resource protection goals continue to be met.

3) Arch will be closing two surface mines and, if the project is developed, opening one surface mine. Table 4.3 (page 4-9 in the DEIS) presents a comparison of the maximum permitted air emission levels for the two mines that will be closed and the highest estimated emissions for the new mine. The Seminoe II and Medicine Bow mines are permitted to emit 972.7 tons per year (tpy) of the five major pollutants. Under the worst-case scenario, surface mining and transportation option 6 represent the highest emissions of any under the Proposed Action. Maximum emissions under option 6 are estimated to be 1,287.14 tpy, a 32% increase from permitted levels at the two existing mines. However, average emissions under this option would be 723.6 tpy, or a 26% reduction from currently permitted levels.

Emissions for Arch's preferred haulage option, transportation option 1, are estimated to range from 148.31 tpy, a 85% decrease from the currently permitted levels at the two existing mines, to 1,099 tpy, which represents a 13% increase over currently permitted levels. There are numerous opportunities to reduce emissions in the Carbon Basin by selecting a lower-emission transportation option and implementing emission control procedures. The reduction in emissions from the closure of two mines should easily compensate for emissions from the proposed new mine, and cumulative impacts would be reduced.

Response to Comment D2 - The BLM was within its authority and followed proper procedures to amend the existing land use plan to include a change in the coal planning decisions. Federal regulations found at 43 CFR 1610.5-5 state that "a resource management plan may be changed through amendment." As discussed in *Environmental Assessment for Coal Planning Decisions in the Carbon Basin Area of the Great Divide Resource Area* (BLM 1997a), a federal coal lease existed on 60% of the federal coal lands at the time the current BLM land use plan (the GDRA RMP [BLM 1990]) was prepared. Because the area was leased, it was exempt from the coal screening/planning requirements (43 CFR 3461.3-2). Also, no interest was expressed by industry in obtaining federal coal leases on the remaining lands.

The BLM is committed to protect and preserve significant natural and cultural resources, provide for a variety of public land uses, and enforce federal laws and regulations under its authority. This DEIS was completed to disclose the environmental impacts resulting from the leasing and subsequent mining of federal coal within the southern portion of Carbon Basin.

Response to Comment D3 - The cumulative impact analysis area analyzed in the DEIS for socioeconomic impacts was Carbon County. As stated on page 4-70, Section 4.4.1.1, and on page 4-74, Section 4.4.2.1, in the DEIS, the continuation of employment opportunities for workers now employed at Arch's Medicine Bow and Seminoe II mines would be significant to the Town of Hanna and surrounding communities and to Carbon County as a whole.

The project serves the national interest as set forth in the *Federal Mineral Policy Act*, the *Federal Coal Leasing Amendments Act*, and the *Federal Land Policy and Management Act*.

The No Action Alternative will be considered during the decision-making process.

Response to Comment D4 - Response to Comment D1 presents the rationale for not designating all of southern Wyoming as the cumulative impact analysis area for air, water, and wildlife resources. In addition, Arch will be closing and completing reclamation at its Seminoe II and Medicine Bow mines and, if this project is developed, opening one surface mine. Therefore, cumulative impacts to some resources would be reduced from current levels. The closure of two surface mining operations would potentially reduce cumulative effects to the following resources:

- air pollutant emissions;
- potential for water pollution (minimal due to pollution control measures currently in-place);
- displacement from habitat;
- direct wildlife mortality;
- water consumption;
- soil loss due to accelerated erosion (minimal due to use of required erosion control measures);
- potential for bird collisions with power lines, draglines, and other mine-related structures;

- loss of AUMs;
- loss of access to other mineral resources such as oil and gas; and
- increased ambient noise and odors.

Response to Comment D5 - BLM has been given the mandate to manage multiple uses on public lands. The stewardship of public lands requires that BLM authorize actions in a manner that will minimize harm to the environment. The length of time beneficial or adverse impacts would occur is a consideration but is not the overriding issue that determines the viability of an action.

Mine development under the No Action Alternative would begin in 1999, and mining would begin in 2000 and end in 2007, a total of an 8-year mine life (see Section 2.1.1 in the DEIS). Under the Proposed Action, federal leasing would allow an extension of surface mining through 2010 and underground mining would continue through 2020 (see Table 2.12 in the DEIS). In summary, the leasing of federal coal would add 13 years to the mine life discussed under the No Action Alternative, instead of seven as you have indicated. The LOM would be 21 years.

Response to Comment D6 - A cumulative impact analysis is provided for each resource analyzed in the DEIS (see Sections 4.2.2.4, 4.1.8, and 4.1.2.4 for the cumulative impact discussions for those resources listed in this letter). See page 4-2 and Table 4.1 in the DEIS for development activities included in the cumulative impact analysis.

Response to Comment D7 - Section 4.6 in the DEIS describes visual impacts due to mine development and other projects in the cumulative impact analysis area from both foreground and distant viewpoints. The No Action and Proposed Action Alternatives would result in operations that would dominate the landscape depending on the distance from which the mine is viewed. WDEQ requires permittees to monitor values such as surface and groundwater quality, revegetation, air quality, climatic conditions, annual disturbance, and wildlife utilization and report these findings to WDEQ on an annual basis.

Response to Comment D8 - The Shirley Basin mines, which are located approximately 35 mi from the CBCPA, have not been engaged in any active mining operations for over 4 years. Currently, most reclamation is complete, with 80% of the area topsoiled and seeded. All reclamation other than monitoring activities should be complete in 1999, prior to the proposed opening of the Carbon Basin Mines (personal communication, November 1998, with Tom Hardgrove, Pathfinder Mines). Thus, no additional air or water quality impacts would occur due to the Shirley Basin Mines.

Response to Comments D9 - The near-field modeling completed for this project demonstrates that pollutant emissions would be within national and state standards at a distance of 1.0 mi from the mine. Potential increases in air pollutants from the proposed project were found to be immeasurably small and outside the bounds of accuracy of any far-field models. Further, a reduction in regional air quality impacts will result from the closing of the Seminoe II and Medicine Bow mines (see response to comment D4).

Response to Comment D10 - BLM concurs that habitat degradation occurs both in and immediately adjacent to disturbed areas and that such loss of effective habitat would be somewhat greater than the disturbed surface. Also, displaced animals may or may not find suitable habitat in adjacent undisturbed areas. Six percent of the CIAA is currently disturbed or proposed for disturbance, and additional habitat would be degraded. However, BLM concluded that the 519,037 acres of undisturbed land within the CIAA is highly likely to contain suitable habitat for animals displaced from degraded areas; therefore, a more detailed analysis of effective habitat loss such as habitat mapping, estimates of disturbance buffers, etc., is not warranted.

Response to Comment D11 - According to the Intergovernmental Panel on Climate Change (1995), scientific information is sufficient to show a discernible human influence on global climate, and the burning of fossil fuels is a major contributor to greenhouse gas emissions. However, the scientific community is still uncertain about when, how much, and at what rate earth's climate will respond to the build-up of greenhouse gases, or what feedback mechanisms (e.g., sinks for carbon dioxide) may reduce their atmospheric concentrations.

Combustion of the 119.123 million tons of coal to be mined would result in estimated emissions of 1,030,319 tons of pollutants (Table 8.1 on the following page); assuming that the coal is burned over a period of 20 years, an estimated 51,516 tpy of pollutants would be emitted. Project activities would contribute to pollutant emissions, including greenhouse gases, and thus may contribute to the human influence on the environment. However, as stated in Section 1.0 in the DEIS, the coal would meet increasing demands by the electric utilities for low-sulfur coal to provide the U.S. with electrical power while complying with the *Clean Air Act* and amendments.

Response to Comment D12 - The USFWS will assess impacts to mountain plover and other TE&C species in the larger context of their populations. The USFWS has reviewed the Biological Assessment for this project and will render a biological opinion on whether the project is likely to jeopardize the continued existence of the mountain plover and other species. In formulating the biological opinion, USFWS will take into consideration the known mountain plover population and the potential effects of the project on the species' continued existence.

Response to Comment D13 - The last sentence on page 4-63, column 1, paragraph 2, states: "In addition, areas adjacent to disturbance may be avoided, or movement through or around those areas may be impeded; thus, for some species, the effective amount of habitat disturbance may be greater than the acreage of actual disturbance." Although there is potential for fragmentation, there is no evidence at the existing mines that disturbance has impeded movements or caused animals to avoid adjacent undisturbed habitats. Furthermore, the areas between the various developments are large, so wildlife have access to large continuous tracts of habitat.

Table 8.1 Estimated Air Quality Emissions from the Combustion of All Coal Produced[1] from the Proposed Carbon Basin Coal Project.

Pollutant	BACT Emissions[2] Factors	Emissions (tons)[3]	Emissions (tpy)[4]	Percent of Annual U.S. Emissions
SO_2	0.18 lb/mmBTU	241,867	12,093	0.08
NO_x[5]	0.15 lb/mmBTU	201,556	10,078	0.13
VOC	0.015 lb/mmBTU	20,156	1,008	--
CO[5]	0.15 lb/mmBTU	201,556	10,078	--
Particulate	0.02 lb/mmBTU	26,874	1,344	--
CO_2[5]	5.68 lb/ton	338,309	16,915	0.0002
Total		1,030,319	51,516	--

[1] Proposed maximum LOM production is 119.123 million tons.

[2] Source: WDEQ/AQD standards and Two Elk Generation Partners, L.P. Permit Application Analysis AP 857, WDEQ/AQD. December 16, 1997.

[3] Emission estimates were made assuming that the mined coal would have an energy content of 11,280 British Thermal Units (BTU)/lb, for a total of 2.69×10^9 mmBTU.

[4] Assumes the coal is burned over a 20-year period.

[5] Greenhouse gases.

Response to Comment D14 - As stated on page 4-48 in the DEIS, a wetland mitigation plan would be developed in consultation with the WDEQ and the U.S. Army Corps of Engineers (ACE).

As of 1992, each coal mine must receive approval to disturb wetlands within their permit area. Under the new Nationwide Permit 21 issued on February 21, 1997, the Wyoming ACE office requires each mine to submit a Preconstruction Notification (PCN), a Delineation of Jurisdictional Wetlands (using guidelines set forth in ACE's 1987 Wetlands Delineation Manual) to be disturbed during the LOM, and a copy of the state-approved wetland mitigation plan for the term of the permit. This wetland inventory and mitigation plan, once approved by the ACE, is incorporated into Appendix D10 of the WDEQ mine permit.

The ACE requires "acre for acre" mitigation under a "no net loss" criterion, and wetland values and functions (i.e. hydrologic and ecologic characteristics) would be similar to premine conditions. As an example, of the total wetlands disturbed in the Powder River Basin to date, 96 acres (31%) have been restored (personal communication, November 1998, with Ed Heffren, BLM). A reclamation bond is held until it is assured that the wetlands are self-sustaining and are not being artificially enhanced.

Furthermore, in addition to mitigation requirements for jurisdictional wetlands, it is BLM's policy to protect all wetlands on BLM-administered surface. Text in Section 4.2.1.2 of the FEIS has been modified to reflect this policy.

Response to Comment D15 - Coal mining is one of the most heavily regulated and monitored activities occurring on federal, state, or private land in Wyoming. Numerous layers of NEPA analysis occur at all stages of federal coal planning and leasing. A NEPA document is also required during mine permitting if federal coal is included in the permit area. The inventory, monitoring, surveying, and mitigating actions which occur before, during, and after mining are all in place to assure that impacts are kept to the minimum necessary to accomplish the project. Yearly reports are required by WDEQ to assure that timely adjustments to operations can be made such that unanticipated environmental concerns can be alleviated or reduced.

The NEPA process encourages inventory, monitoring, mapping, etc., as methods to provide disclosure of affected resources and impacts to those resources. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA. The EIS process does not require that all significant impacts be eliminated, only that all reasonable efforts be taken to reduce impacts to the environment. Agencies shall to the fullest extent possible use all practicable means, consistent with the requirements of NEPA and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment.

The BLM does not have the authority to approve or deny a SMCRA mine permit application. This authority belongs to the OSM and WDEQ.

Response to Comment D16 - There is presently no clean-up proposed at the state level for the Medicine Bow River (personal communication, November 1998, with Todd Parfitt, WDEQ, Water

Quality Division). WDEQ has commenced their Beneficial Use Reconnaissance Monitoring, a program designed to determine which streams within the State of Wyoming are impaired and determine their sources of impairment. After completion, a Total Maximum Daily Load will be established for these streams. The Medicine Bow River is classified as impaired downstream from the town of Medicine Bow (over 7 mi from the CBCPA).

There would be little to no potential for adverse water quality impacts to the Medicine Bow River from the Proposed Action because WDEQ requires implementation of site-specific runoff control practices designed specifically to prevent water pollution (see Section 4.1.8.1, page 4-33 in the DEIS). Arch would be required to construct and monitor water pollution control devices such as sediment and evaporation ponds, diversion structures, water bars, silt fences, etc., such that runoff from the project would meet water quality standards. Runoff from storms or snow melt would be contained and would not be discharged to the Medicine Bow River until the water quality standards set forth in the NPDES have been met. Some of the water quality impacts to the Medicine Bow River are caused by sediment-laden runoff from the Sand Creek watersheds and Arch's water pollution control efforts would reduce the sediment levels in this runoff.

Impacts to groundwater must be analyzed in the context of current groundwater quality found in the proposed project area. The premining groundwater quality is poor, suitable only for livestock and wildlife watering and industrial uses. Postmining groundwater would also be poor, probably with higher levels of calcium, sulfate, magnesium, manganese, and total dissolved solids than premining waters, but postmining uses would be the same as premine uses. Second, the majority of the current use is for industrial purposes (mine-related monitoring), so the fact that groundwater levels may not recharge for 100 years or more is inconsequential unless there is some future demand for the poor-quality water in this area. Given the history of groundwater use in this area, increased demand is highly unlikely. Furthermore, water levels within the replaced overburden aquifer may be sufficiently recovered within a few years of final reclamation such that landowner/lessees could construct productive wells for stock watering.

Response to Comment D17 - BLM is responsible for managing public lands for multiple use without infringing on the rights of private landowners. The proposed coal mine project area consists of 3,266 acres of federally administered land (18% of CBCPA), compared with 13,360 acres of private land (74% of CBCPA). The ROW issued for the windpower project encompasses 60,619 acres, 37,584 of which are privately owned (68%). Therefore, development in the CIAA is largely a consequence of actions on private land. During the NEPA process, BLM has and will continue to weigh the environmental consequences of its actions, landownership patterns, landowner wishes, and public response during the decision-making process.

Response to Comment D18 - The scoping letters received from Biodiversity Associates/Friends of the Bow and Wyoming Outdoor Council address issues related to the Planning Review EA (BLM 1997a) and to the development and operation of the coal mines. Since the DEIS specifically addresses impacts of issuance of the federal coal lease, scoping comments related to the Planning Review EA are not addressed in these responses to comments. The issues and concerns raised by Biodiversity Associates/Friends of the Bow during scoping included:

- Air quality degradation, specifically as it relates to valuable airsheds downwind of the proposed mine. Please see Section 4.1.2 in the DEIS and response to comment D9.

- Degradation of surface and groundwater quality, most specifically the Medicine Bow River. Please see Section 4.1.8 in the DEIS and response to D16.

- Impacts to special status species. These impacts are addressed in Sections 4.2.2 and 4.2.3 in the DEIS. No sensitive plant communities have been identified in the CBCPA (personal communication, November 1998, with Jim Orpet, Intermountain Resources, Inc.). Ute ladies' tresses may occur in the project area (page 3-56 in the DEIS), and future surveys would be conducted to ensure that this species and their habitats are managed in accordance with the *Endangered Species Act*. Surveys for special status species and its habitat would be completed along the chosen transportation corridors prior to surface disturbance.

- Cumulative impacts to wildlife from extractive industry and development across Wyoming. Cumulative impacts to wildlife are addressed in Sections 4.2.2.4 and 4.2.3.4 in the DEIS. Responses to comments D1 and D4 present BLM's rationale for not considering all of southern Wyoming in the cumulative impact analysis.

- Likelihood that valuable, crucial winter range will be degraded or lost altogether for the next 10 years if this project is authorized. Loss of crucial winter range is addressed in Section 4.2.2 in the DEIS.

- Degradation or loss of ground-nesting bird habitat, particularly for sage grouse and mountain plover. Loss of ground-nesting bird habitat is addressed in Section 4.2.2 in the DEIS.

- Likelihood that the project will destroy and/or degrade raptor habitat. Impacts to raptor habitat are discussed in Sections 4.2.2 and 4.2.3 in the DEIS.

- Desecration, damage, or destruction of priceless Native American tribal values. Cultural resource impacts are discussed in Section 4.3 in the DEIS. BLM will manage cultural resources, including Native American concerns, in accordance with the *National Historic Preservation Act*; *Historic Sites, Buildings and Antiquities Act*; *American Indian Religious Freedom Act*; Executive Order 11593; *Antiquities Act*; *Archaeological Resources Protection Act*; *Archaeological and Historic Data Preservation Act*; and the *Native American Graves Protection and Repatriation Act*. It should be noted that no response was received from any Native American group, and no religious site was identified for preservation within or adjacent to the CBCPA.

- Degradation or loss of valuable archaeological, paleontological, and geologic resources. Impacts to these resources are discussed in Sections 4.3, 4.1.6, and 4.1.4, respectively, in the DEIS.

- Loss of visual beauty adjacent to Elk Mountain and the Medicine Bow National Forest. Impacts to visual resources are described in Section 4.6 in the DEIS. Also see response to comment D7.

- Current levels of monitoring conducted by BLM and other agencies is not able to reveal cumulative impacts to soils, water, air, and wildlife. Monitoring would be required for this project under the authority of WDEQ and is discussed in Section 5.0 in the DEIS.

- Loss of recreation opportunities. Impacts due to loss of recreational opportunities are described in Section 4.5 in the DEIS. Also see the response to comment E22.

- Full analysis of a No Action Alternative. Impacts from a No Action Alternative, which because of land and coal ownership patterns is not a "no-mining" alternative, are addressed for each resource in Section 4.0 in the DEIS. Also see response to F2.

The issues and concerns raised by the Wyoming Outdoor Council (WOC) during scoping include:

- Environmental, health, and safety concerns about using Highway 72 as a haul road. Many other respondents had similar concerns; therefore, BLM developed 10 transportation options, and the impacts by resource and energy requirements are analyzed in the DEIS.

- Assess the cumulative impacts/affects of this and other proposed and reasonably foreseeable future actions in the area. Arch will be closing two currently operating surface mines and opening one mine, so the cumulative effects of mining on certain resources will be reduced from current levels (see response to comment D4). The WOC scoping letter asked that numerous projects/actions be included in the cumulative impact analysis. These are briefly discussed below.

  1) Arch's proposed mining of its private lands is the No Action Alternative in the DEIS.

  2) It is not appropriate to include timber sales on the Medicine Bow National Forest in the cumulative impact analysis. Guidance on cumulative impact analysis states that cumulative effects of projects that are adjacent to or related to the Proposed Action should be analyzed. The closest active timber sale to the CBCPA is the Holmes Sale located near Rob Roy Reservoir, approximately 35 mi south of the CBCPA. The closest past timber sale occurred in the Rock Creek drainage about 15 mi southeast of the CBCPA. This area was logged in the 1960s. The projects are not adjacent to the CBCPA. Additionally, timber sales affect a different array of landforms, species, and human interest values (e.g., recreational values), so these projects are not related. For these reasons, there is little potential for cumulative effects on a particular resource.

  3) The only water development projects in the cumulative impact analysis area are range improvements for livestock watering. The environmental effects of building and operating these are so minuscule that they were not considered relevant to the cumulative impact analysis.

  4) Potential impacts of livestock grazing in the CIAA include accelerated soil erosion due to soil trampling, water quality degradation due to soil erosion and excrement, destruction of riparian areas from trampling, and loss of forage due to overgrazing in areas preferred by livestock. Of these impacts, mine development and operation would cause accelerated soil loss and removal of vegetation so these resources would be affected cumulatively. Surface water quality would not be adversely affected by mining. Livestock grazing would not contribute to cumulative effects on other resources.

  5) Oil and gas pipelines were not included in the cumulative impact analysis because they are reclaimed and thus assumed to be adequately supporting existing land uses and therefore are not contributing to cumulative impacts.

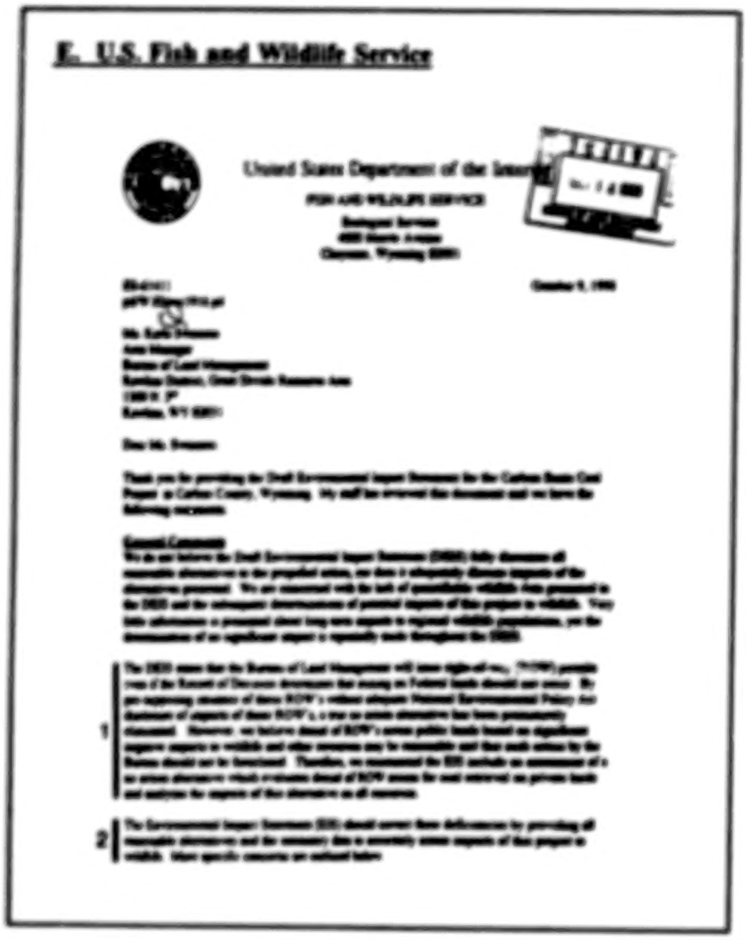
  6) I-80 was considered in the cumulative impact analysis (see "Roads", Table 4.1, page 4-4, in the DEIS).

  7) See response to D9 for discussion of the air quality cumulative impact analysis.

- Should not be allowing Arch to establish a new mine before completing reclamation responsibilities at their existing mines. Arch is currently in compliance with reclamation requirements at both the Seminoe II and Medicine Bow Mines. WDEQ will be responsible for ensuring that the reclamation plan is in conformance with state and federal regulations and that Arch meets all reclamation requirements prior to full bond release.

Response to Comment D19 - The county road referred to is addressed in the DEIS as the Hanna Bypass. The federal and state monies applied for by Carbon County were solely for the purpose of providing a second ingress/egress to the town of Hanna. At present there is only one route into the town, and there are significant health and safety issues associated with single access. Arch has agreed to supply a portion of the funding to support this county project, but it is not part of the Proposed Action or any alternatives related to BLM's analysis.

E. U.S. Fish and Wildlife Service



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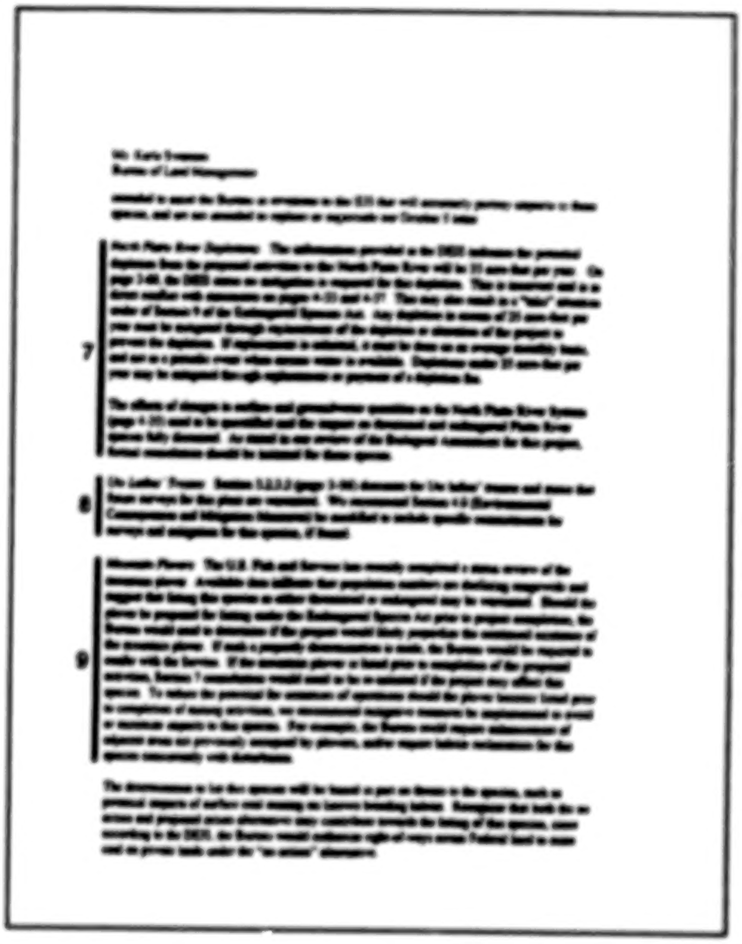

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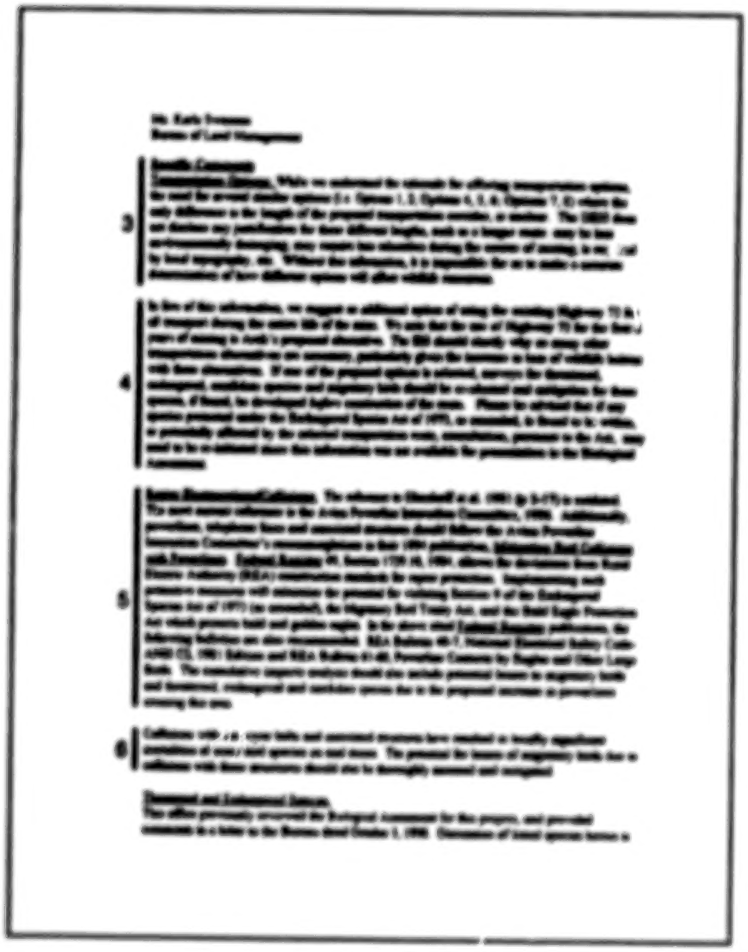

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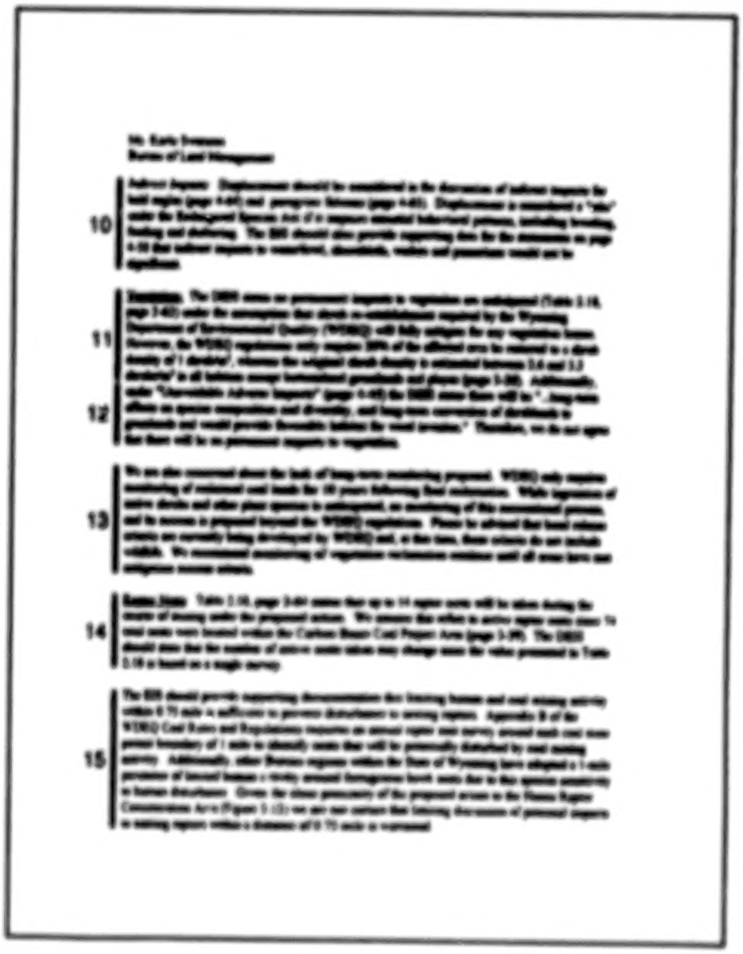

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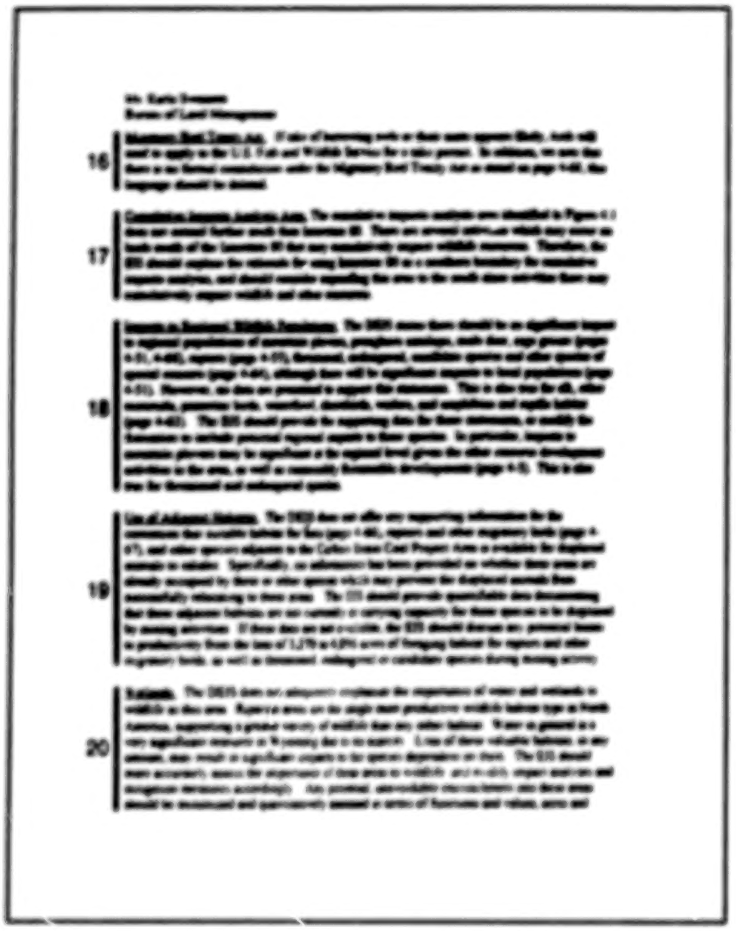
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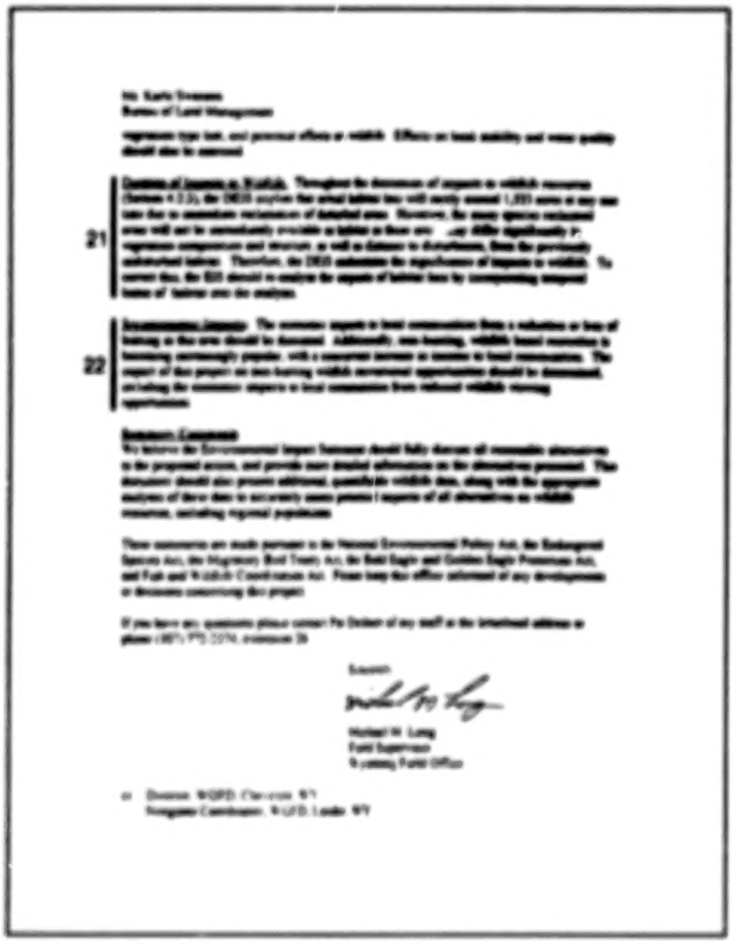


Response to Comment E1 - Title V of the *Federal Land Policy and Management Act* (FLPMA) provides the authority for granting ROWs across public lands. Denial of access across public land to private land could be considered a taking of private property which is supported by case law. BLM Manual 2800.06 provides policy on this issue and states the following:

> Allow owners of non-Federal lands surrounded by public land managed under FLPMA a degree of access across public land which will provide for the reasonable use and enjoyment of the non-Federal land. Such access must conform to rules and regulations governing the administration of the public land; keep in mind, however, that the access necessary for the reasonable use and enjoyment of the non-Federal land cannot be denied.

Because the BLM cannot deny reasonable access to private property, an alternative that would deny any federal ROW and thereby preclude mining of private coal, would be an unreasonable alternative.

Response to Comment E2 - See comment response E1. BLM has obtained and used all relevant available wildlife data in this analysis including current literature; baseline information collected by Intermountain Resources, Inc. for the mine permit application and by Western EcoSystems Technology, Inc. for the windpower project; data on impacts to wildlife at the mines in Hanna; and consultation with the USFWS, WGFD, and the Natural Diversity Database. We believe that the data used to analyze wildlife impacts are the best available. In some cases, these data suggest that there would be significant effects to wildlife from mine development and operation.

Response to Comment E3 - When considering transportation options, BLM selected alternate methods of haulage, as well as alternate haulage routes. The four haul road routes were placed along existing roads such that new disturbance would be minimized. The three conveyor routes were selected 1) to follow the existing ROW along Highway 72, 2) to take the shortest distance between the CBCPA and the Seminoe II loadout, or 3) to take the shortest distance between the CBCPA and the town of Medicine Bow. The two railroad routes follow two routes that were surveyed in the 1980s by Edison Development Company. While there are infinite routes that could be developed, these were determined by BLM to be reasonable options for the various modes of transportation.

As identified on page 1-7 in the DEIS, any ROW outside of the permit area would include cultural resource clearances, wildlife surveys, and BLM-approved reclamation plans as part of the required NEPA analysis for any ROW application.

Response to Comment E4 - As stated on page 2-30 in the DEIS, the current Seminoe II loadout, which has the capacity to process 3.0 million tpy, would not be adequate once underground mining begins. A new facility would be required, and the most logical place to build the facility is within the CBCPA so coal can be efficiently loaded for transport to the Union Pacific mainline.

As discussed on page 4-68 in the DEIS, any transportation option(s) selected would be required to complete surveys for T&E

and sensitive species and their habitat prior to construction (see comment response E3) and monitored after development according to a USFWS- and WDEQ-approved wildlife monitoring and mitigation plan.

Response to Comment E5 - The text has been modified (Section 2.1.5 in the FEIS) to state that all power lines would be constructed in accordance with the recommendations of the Avian Power Line Interaction Committee (1994, 1996) on mitigating collisions and electrocutions. Since Arch will be closing two surface mines in the Hanna Basin thus removing an estimated 21 mi of existing mine-related power lines, the potential for raptor collisions/electrocutions in the CIAA would be reduced from current levels. At present, there are no proposals to proceed with windfarm development in the Simpson Ridge area, a project which could require additional power lines. However, most of these lines would be buried and aboveground lines would be kept to a minimum to minimize potential for collisions or electrocutions (BLM 1997b).

Response to Comment E6 - The conveyor would be completely covered with a light-weight corrugated steel quonset-type cover that would shield all belts and cables (see page 2-34 in the DEIS). There would be potential for mortality of migratory birds due to collisions with the conveyor cover, as well as with equipment associated with the other transportation options, but since these features are highly visible, mortalities should be infrequent. No additional mitigation is proposed.

Response to Comment E7 - See response to comment B2

Response to Comment E8 - The DEIS states (page 3-56, column 2, paragraph 3) that there is a small amount of Ute ladies' tresses habitat within and adjacent to the CBCPA. Text has been added to Section 4.2.3.1 in the FEIS, to describe potential impacts to this species, as well as mitigation, which would include completing surveys for Ute ladies' tresses prior to disturbance.

Section 5.1.2.18 in the DEIS shows as part of the WDEQ performance standards any T&E species or habitat, plant or animal, which was not reported or investigated in the permit application that has been identified, must be reported to the regulatory authority. Upon such notification, consultation would be held with WGFD and USFWS to identify whether, or under what conditions, the operator may proceed.

Response to Comment E9 - As stated in the DEIS and the Biological Assessment for this project, the proposed development is likely to adversely affect mountain plover. If USFWS provides a jeopardy opinion, BLM will comply with USFWS recommendations for mitigation to reduce the potential for cessation of operations should the plover become listed prior to the completion of mining.

If the area is leased for federal coal, the WDEQ performance standards found at Section 5.1.2.18 would require the operator to report any T&E species or critical habitat for T&E species not reported or investigated during the permit application. WGFD and USFWS would be consulted to identify under what conditions the operator could proceed.

Response to Comment E10 - Text in Section 4.2.3.1 in the DEIS has been modified to include a discussion of indirect effects of displacement on bald eagles and peregrine falcons.

Measures would be implemented at the WDEQ permitting phase that would minimize impacts to waterfowl, shorebirds, waders, and passerines. Performance standards found at Section 5.1.2.18 in the DEIS set forth the requirement that the permittee use the best available technology to minimize disturbance and adverse impacts on fish, wildlife, and related values. Standards include actions to restore wetlands disturbed by mining (see comment response D14) and protect streams with a 100-ft buffer zone.

Response to Comment E11 - See response to comment J11. Vegetation loss is considered a long-term impact until vegetation is re-established. Chapter 5, Section 5.1.2.4, in the DEIS describes the performance standards required of the mine operator as part of the mine permitting process. The standards state that, prior to complete bond release, reclaimed areas must show species diversity and composition suitable for the approved postmining land uses.

Response to Comment E12 - Table 2.18 has been revised to state that long-term impacts would occur until shrub reestablishment approaches premining composition and density.

Response to Comment E13 - The WDEQ requirement is found in Section 5.1.2.4 in the DEIS and states that the bond for revegetation shall be retained for not less than 10 years after work has been completed to ensure revegetation. Monitoring continues until bond release criteria are met for 2 consecutive years. The standard also states that with concurrence from federal and state agencies, an alternative technical standard supported by a recognized authority (e.g., USFWS) can be utilized.

Response to Comment E14 - The 14 raptor nests identified in Table 2.18 in the DEIS include both active and inactive nests located during the 1997 survey. Of the 14 nests identified, only four were active in 1997. Table 2.18 is accurate as presented in the DEIS. The 14 nests, whether active or not, are within the area of projected surface disturbance. Additional surveys would be conducted prior to disturbance and activity and number of nests may change.

Response to Comment E15 - The policy established by the BLM Rawlins Field Office is to require a 0.75-mi buffer zone between active raptor nests and human activity; however, mitigation presented in the BA for this project recommends that construction and disturbance within 1.0 mi of an active raptor nest would be avoided, if possible, from February 1 through July 31. Text has been revised (Section 4.2.2.1) to reflect this change.

Response to Comment E16 - Text has been modified (Section 4.2.3.1) to state that Arch would apply to the USFWS for a take permit if impacts to burrowing owls or their nests appear likely. The reference to formal consultation under the *Migratory Bird Treaty Act* has been deleted.

Response to Comment E17 - BLM concurs that there may be activities south of I-80 that could affect wildlife resources, but believes that reanalyzing cumulative impacts to include those areas would not change the overall assessment of cumulative impacts. In fact, the proportion of habitat disturbed by the Proposed Action would be reduced by an increase in the size of the CIAA, because the area south of I-80 is relatively undisturbed except for ranching and agricultural-related activities. See response to comment D1.

Response to Comment E18 - The statement that no significant impact to regional wildlife species populations was based on the amount of regionally available habitat and population sizes relative to the amount of habitat (and the wildlife it supports) that would be removed or modified by the proposed project. The proposed mine would undoubtedly reduce populations of wildlife that depend on mine-affected habitats, but the amount of habitat and associated animals lost would be small compared to the overall regional habitat and populations. For example, the disturbance of 4,568 acres of pronghorn crucial winter range under the Proposed Action would be less than 1% of the crucial winter range of the Medicine Bow Herd and would be much less than 1% of the crucial winter range in the Laramie Region which includes nine other herd units. Some habitats support more or fewer individuals than others due to differences in habitat quality, but even if the habitat proposed for removal is substantially superior to other habitats in the region, the removal of that habitat is likely to affect less than 1% of the regional population, and such amounts are not considered significant on a regional scale. For TE&C species, the USFWS cannot allow the project to proceed if it would jeopardize the existence of TE&C species. If any TE&C species is in jeopardy, Arch, in consultation with USFWS, BLM, and WDEQ, would be required to develop and implement mitigation measures to prevent such jeopardy or the project would not be allowed to proceed.

Response to Comment E19 - The habitat requirements of many of the species addressed in this comment are not currently understood and documented in the literature such that the carrying capacity of affected habitats cannot be quantitatively determined. Surveys have not been conducted to determine the populations of these species in adjacent habitats. Quantitative data are not available to support either position concerning these populations relative to the carrying capacity and the ability to accept displaced bats, shrikes, curlews, Brewer's sparrow, lark, bunting, and similar species. Text has been modified to delete the reference to adjacent suitable habitat and to describe the possible effects of wildlife displacement into adjacent habitats (Section 4.2.3.1).

Response to Comment E20 - The importance of wetlands in the CBCPA, including their importance as sites for food chain production; wildlife and vegetation habitat; nesting, rearing, and resting sites for aquatic and terrestrial species; etc.; is described on page 3-28 in the DEIS. See also comment response D14.

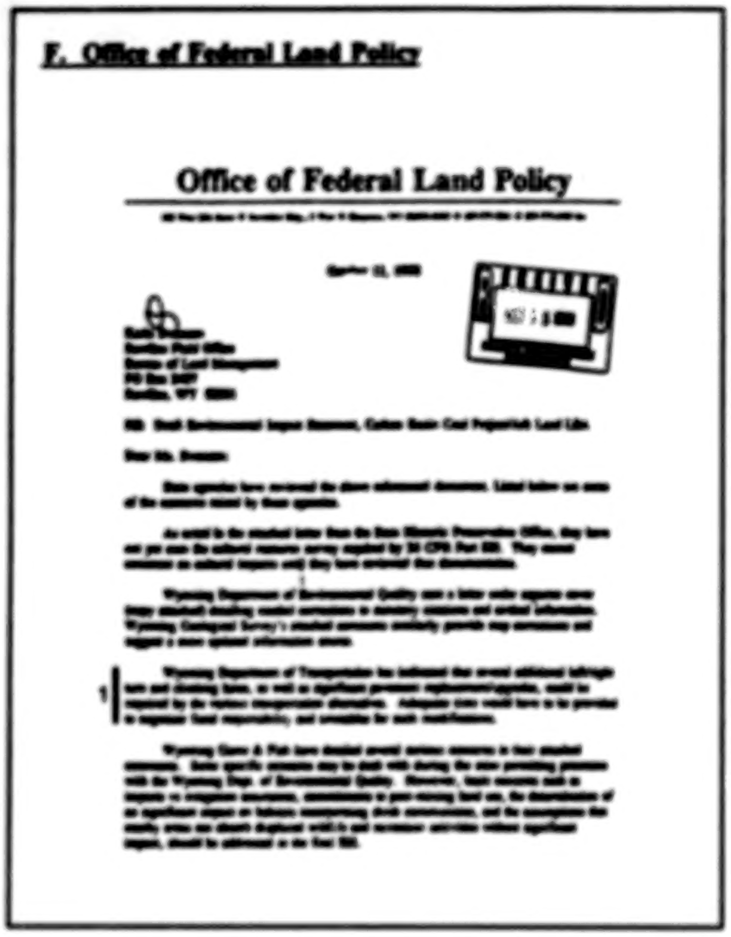
Response to Comment E21 - The wildlife section of the 1997 Annual Report submitted to WDEQ by Arch for the Medicine Bow Mine compares the use of habitats by big game animals at this mine for the years 1993 through 1997. The most prevalent big game animal is pronghorn antelope. During this 5-year period, there were a total of 6,222 pronghorn observed in the permit area. A majority (73%) were observed in undisturbed mixed sagebrush-grass; however, the next largest number of pronghorn (11%) were seen in disturbed and reclaimed areas. Mule deer are not often observed at the Medicine Bow Mine, but a small number have been noted utilizing reclaimed areas. Because of the shape of the coal outcrop, the width of the surface-mined strip will not exceed 1 mi and is on average about 0.6 mi wide, so no animal would ever be more than 0.3-0.5 mi from undisturbed habitats.

The DEIS discusses temporal effects on wildlife. See, for example, page 4-53, column 1, paragraph 1, lines 3-6; column 2, paragraph 2, lines 22-25 and continuing to the next page; page 4-58, column 1, paragraph 1, lines 5-12; page 4-59, column 1, paragraph 2, lines 7 and 8.

Response to Comment E22 - Page 4-78 in the DEIS states that there would be no change in the general policy regarding access to the project area by hunters except that access would be restricted in areas adjacent to active mine operations. Nonhunting recreationists would be given the same consideration. Ark controls the private land within the CBCPA. Where federal land is legally accessible, these lands would continue to be available to the public.

Loss of hunting opportunities would be realized if, based on the LOM loss of habitat due to surface disturbance, the WGFD decides to reduce the herd objective for one or more species of big game in the region. The WGFD has not indicated any need to consider adjusting existing herd objectives.

F. Office of Federal Land Policy

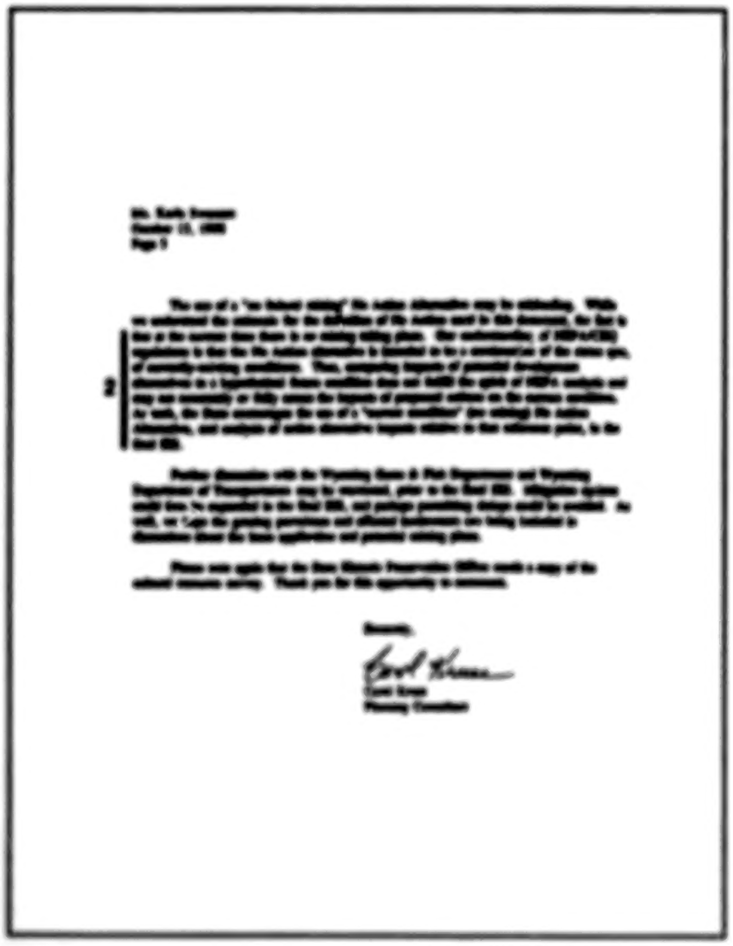


Office of Federal Land Policy

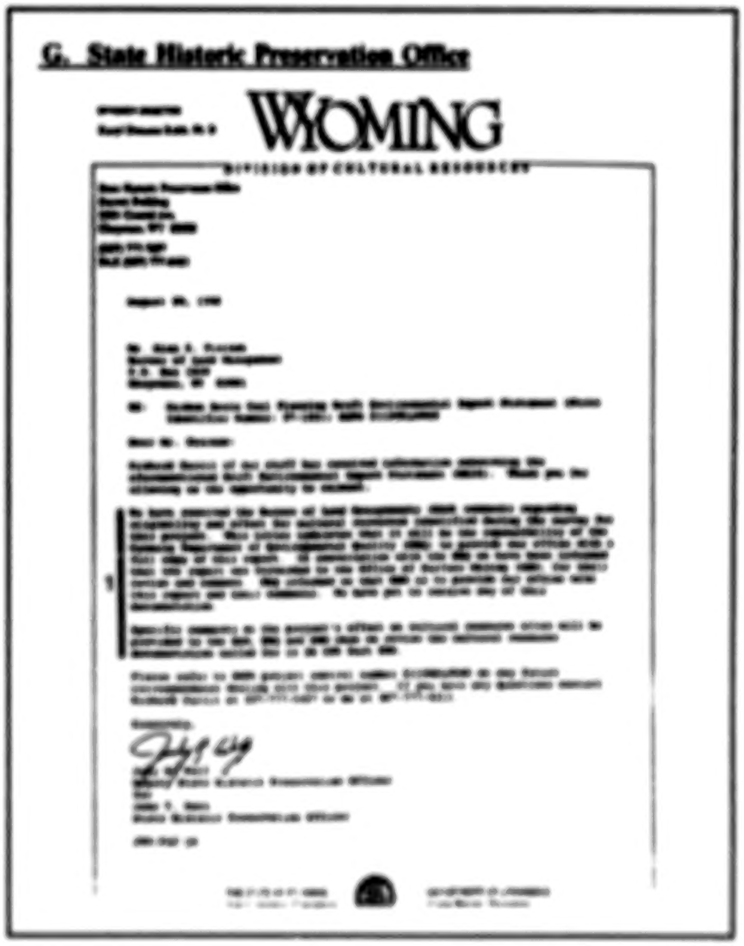
Response to Comment F1 - Arch anticipates that there would be sufficient time to discuss highway upgrades with the Wyoming Department of Transportation prior to mining. Mitigation could include (but is not necessarily limited to) upgrading the highway to accommodate the greater volume of traffic or reducing the number of truck trips to remain below current design standards.

Response to Comment F2 - A No Action-No Mining Alternative was considered during DEIS preparation. A No Mining Alternative was not analyzed in detail because Arch would likely mine the privately owned coal on private land, regardless of the federal action (see Section 2.1.1 in the DEIS). Text in Section 2.4 in the FEIS has been modified to include a No Action-No Mining Alternative as an alternative considered but not analyzed in detail.

To clarify the presentation of baseline information in the DEIS from which a comparison of alternatives can be made, additional information from the Affected Environment has been added to Table 2.18 (see Table 2.18a in this FEIS) to show project effects relative to the existing environment. It is BLM's belief that with this information as now presented in Chapter 2, that the alternatives analysis in this EIS fully discloses the impacts, both direct and indirect, of proposed mining.



G. State Historic Preservation Office

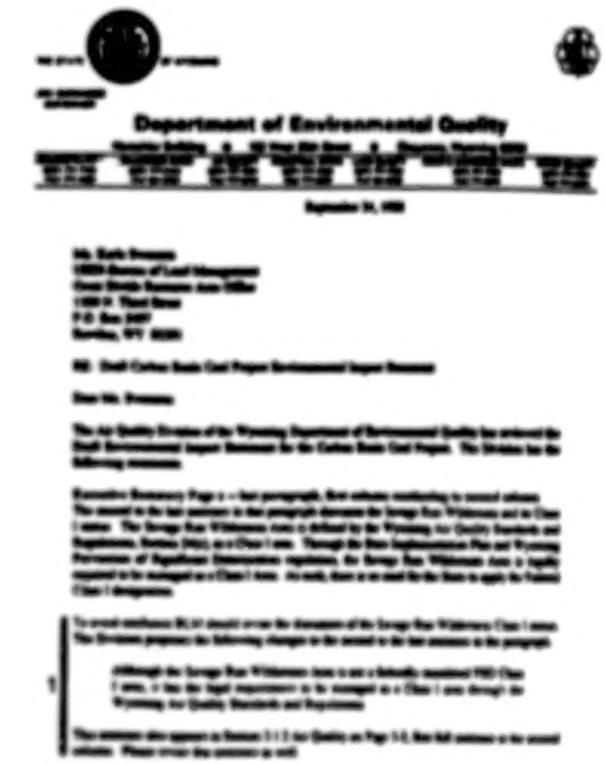


WYOMING

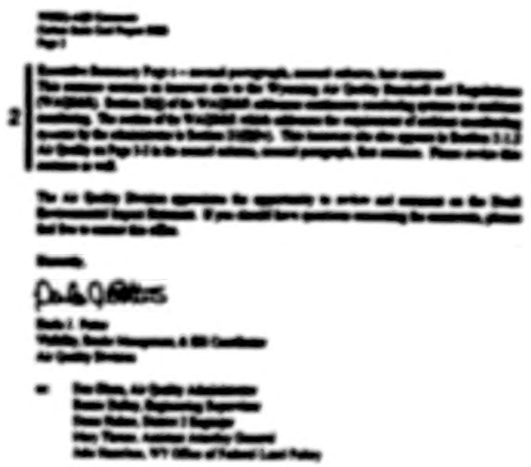
DIVISION OF CULTURAL RESOURCES

__Response to Comment G1__ - Additional coordination will take place between WDEQ and OSM during permitting.

H. Department of Environmental Quality

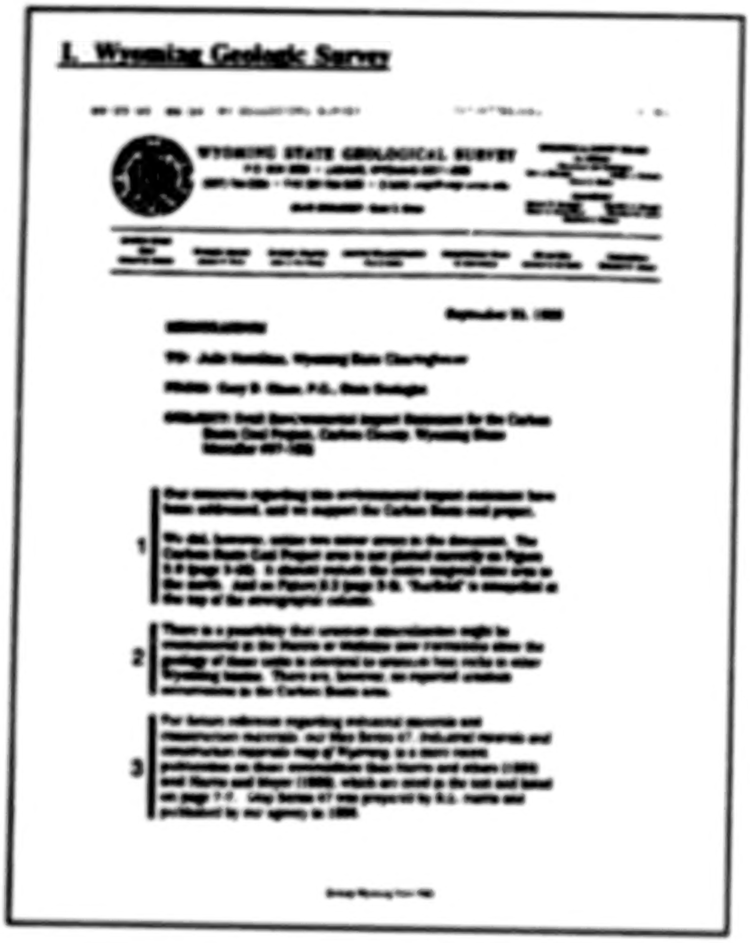


Department of Environmental Quality

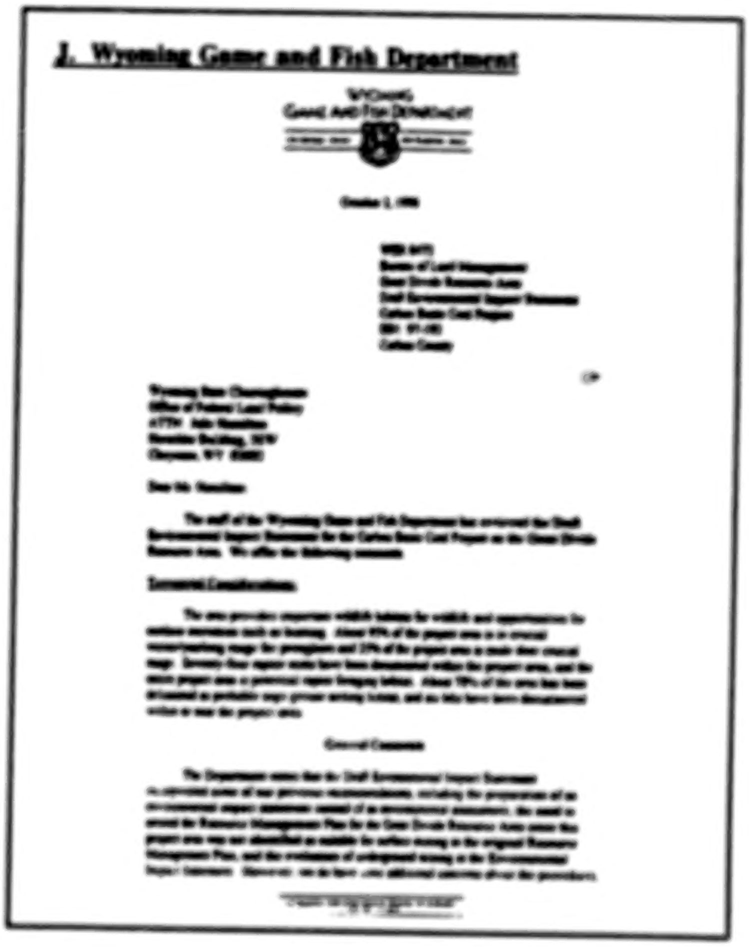


__Response to Comment H1__ - Text (Executive Summary and Section 3.1.2 in the FEIS) has been revised as requested.

__Response to Comment H2__ - Text (Executive Summary and Section 3.1.2 in the FEIS) has been revised as requested.



I. Wyoming Geologic Survey

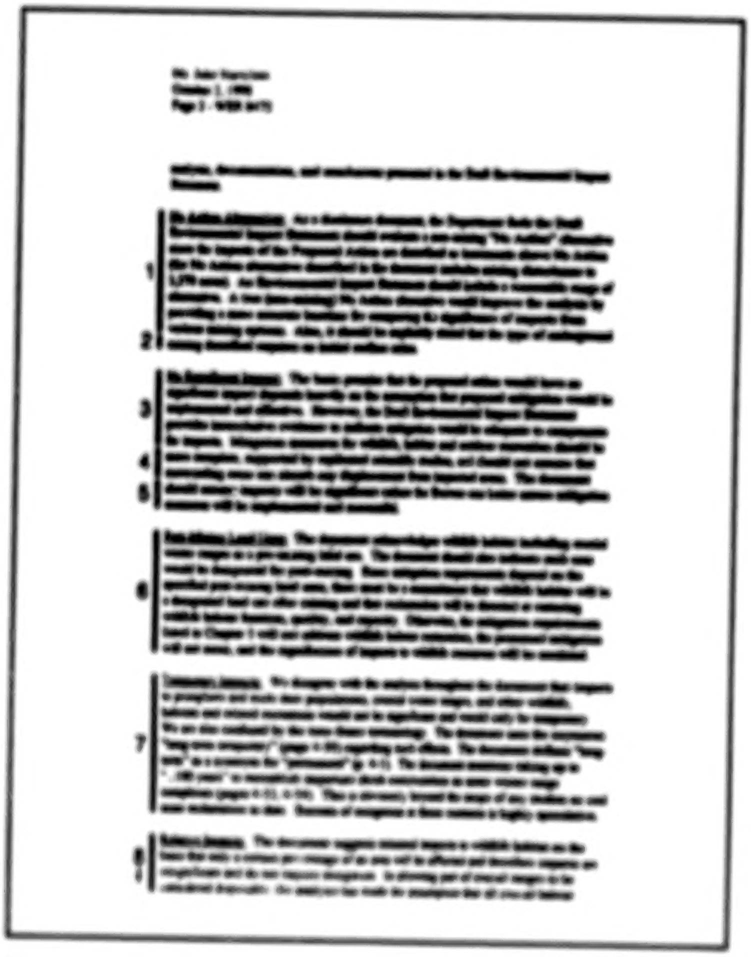


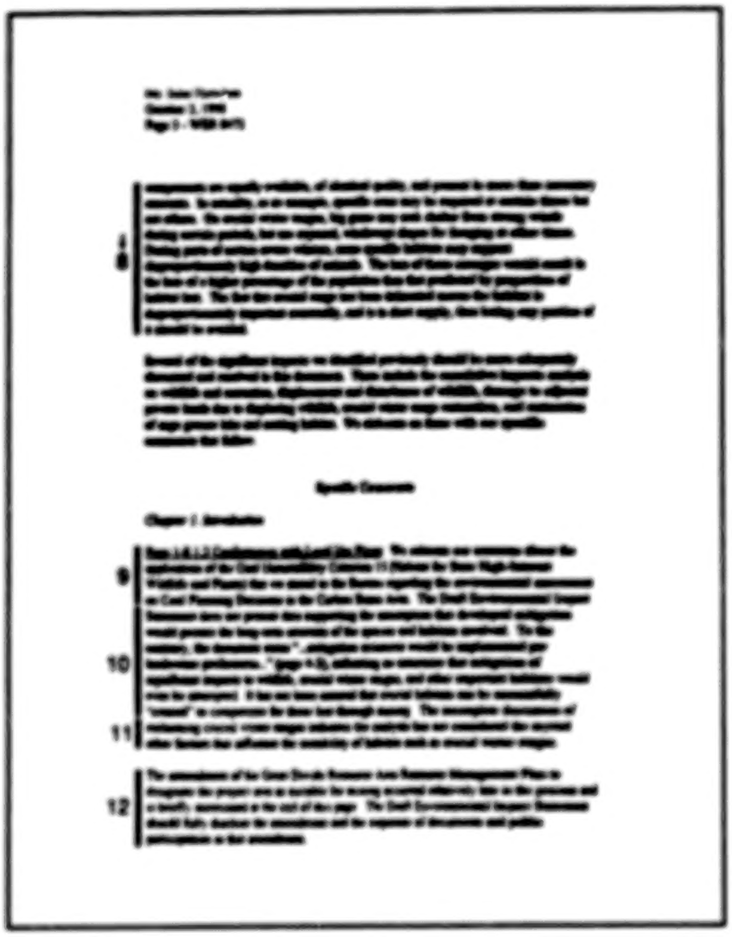
J. Wyoming Game and Fish Department

Response to Comment I1 - Figures 2.9 and 3.2 have been corrected as requested.

Response to Comment I2 - Wyoming Geologic Survey Report of Investigation No. 22 (1980) states that Hanna Formation coals in the Carbon Basin contain uranium with a mean value of 3.9 parts per million based on 18 samples. Bob Janssen, Geologist in the BLM's Wyoming State Office, reviewed the trace element analysis completed for two core holes drilled in the CBCPA and confirmed the presence of uranium in the Hanna Formation coals. This language has been added to Section 3.1.5.4 of the DEIS.

Response to Comment I3 - The references have been updated as requested (see Sections 3.1.5 and 7.1 in this FEIS).

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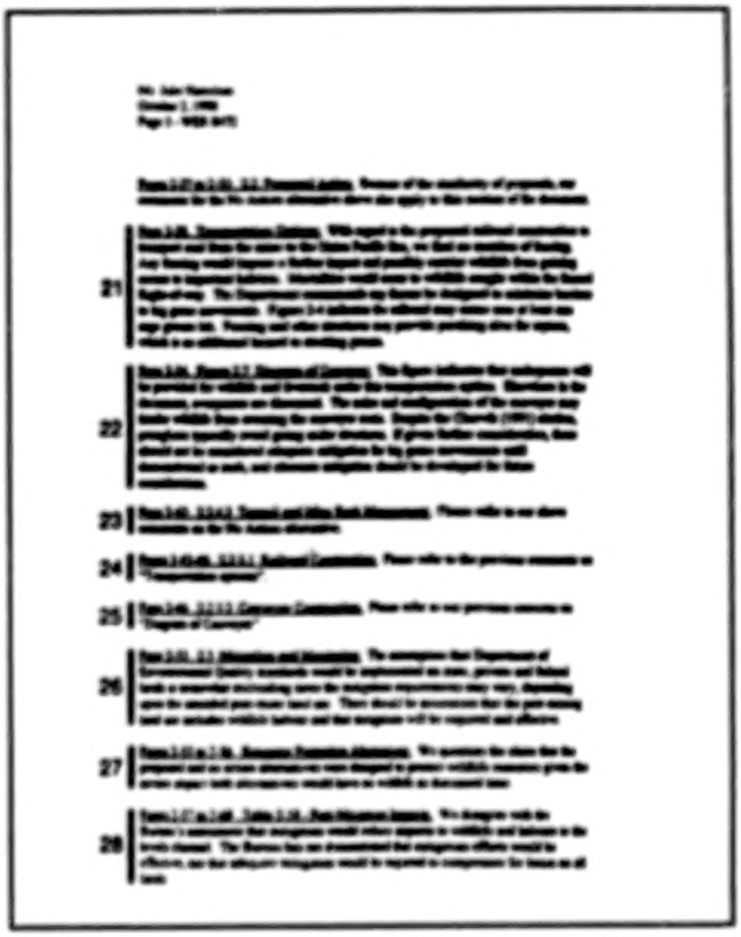
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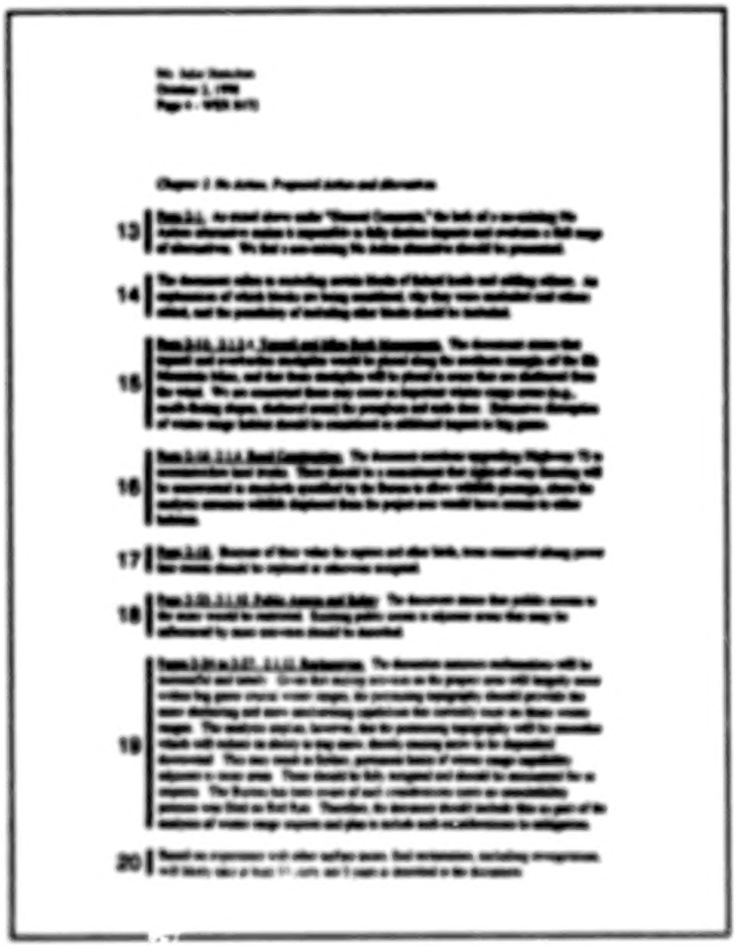
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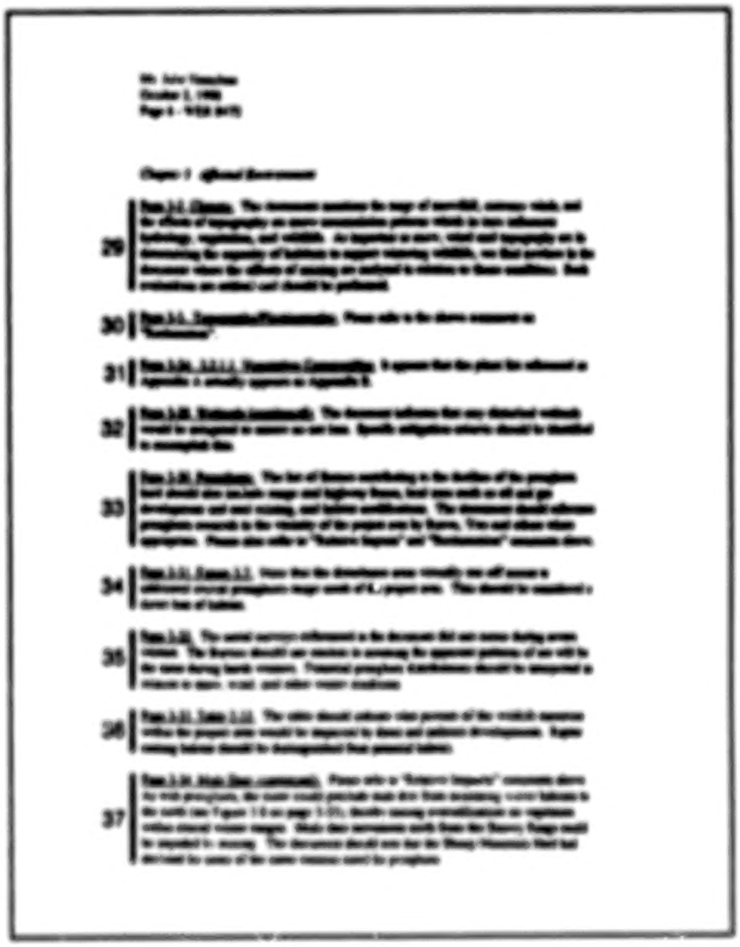
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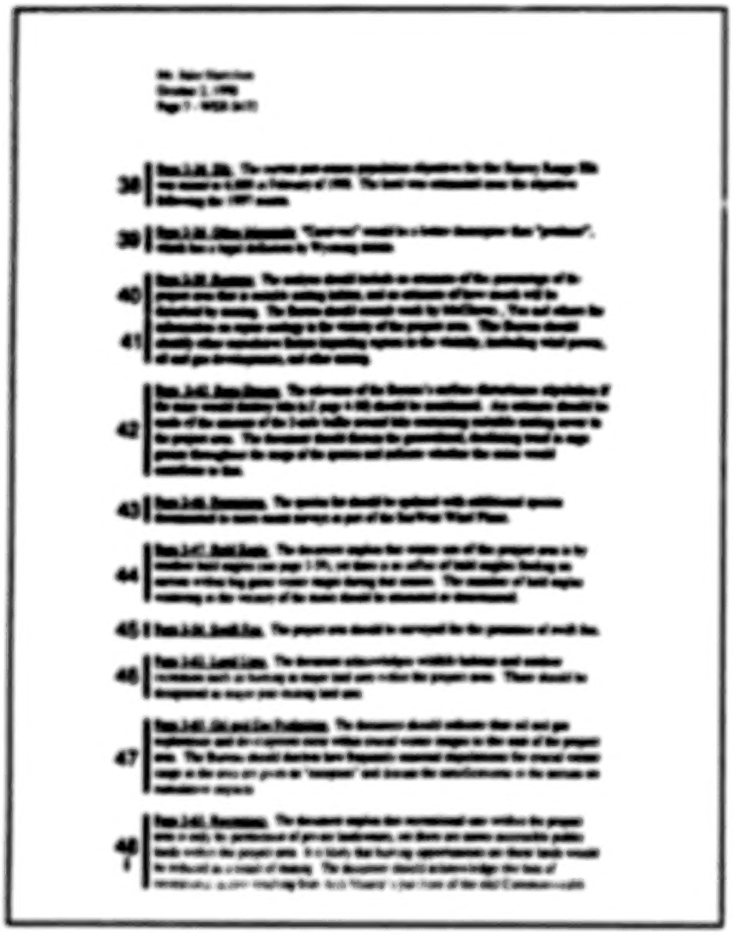
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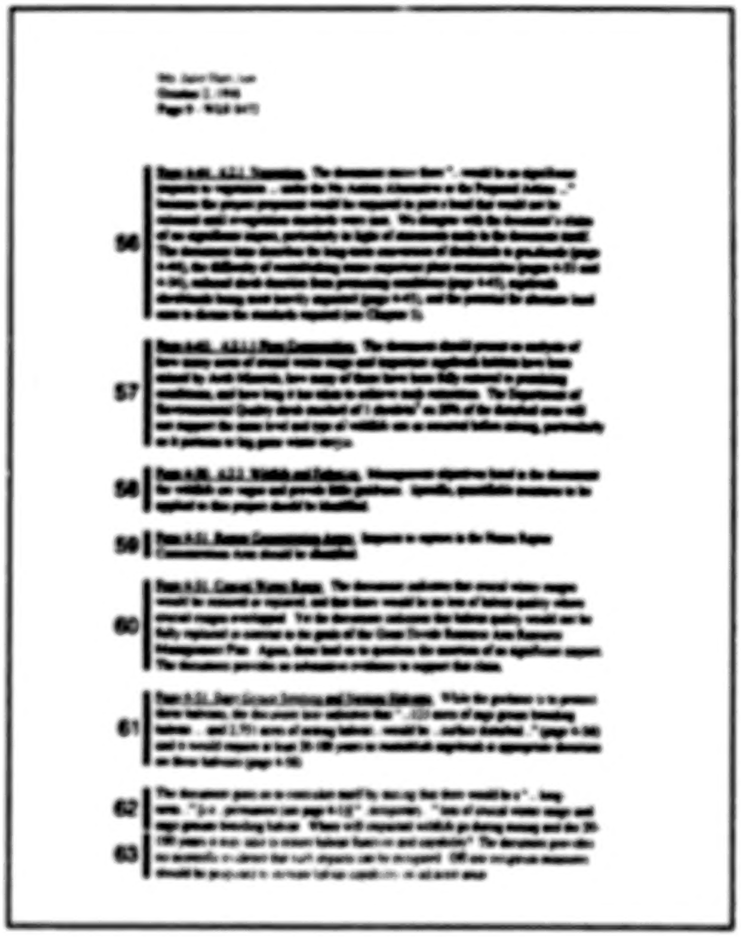
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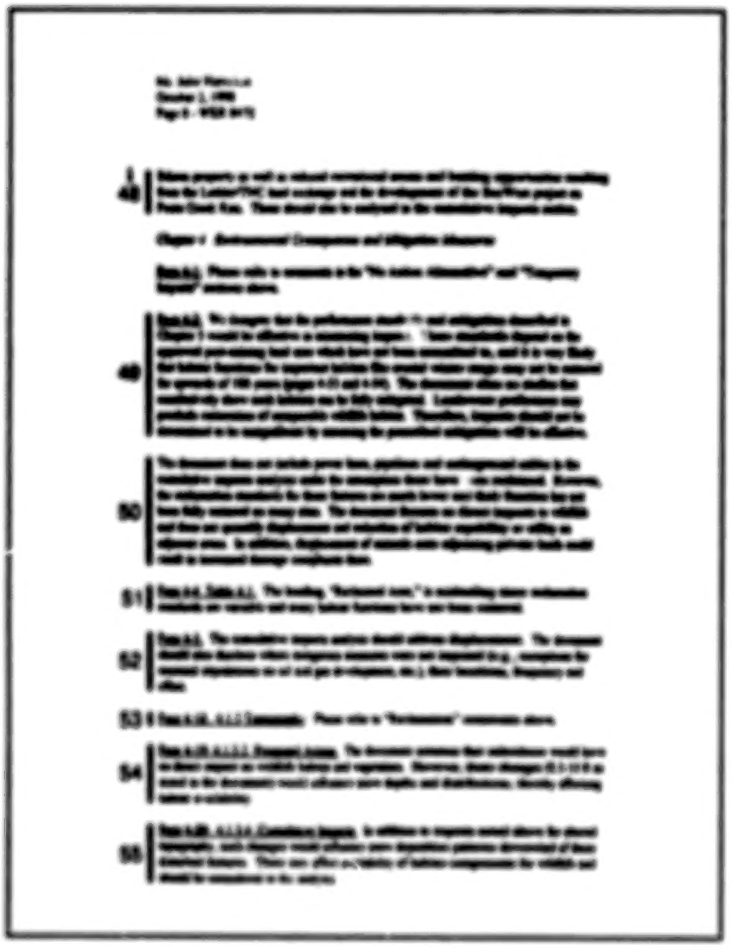
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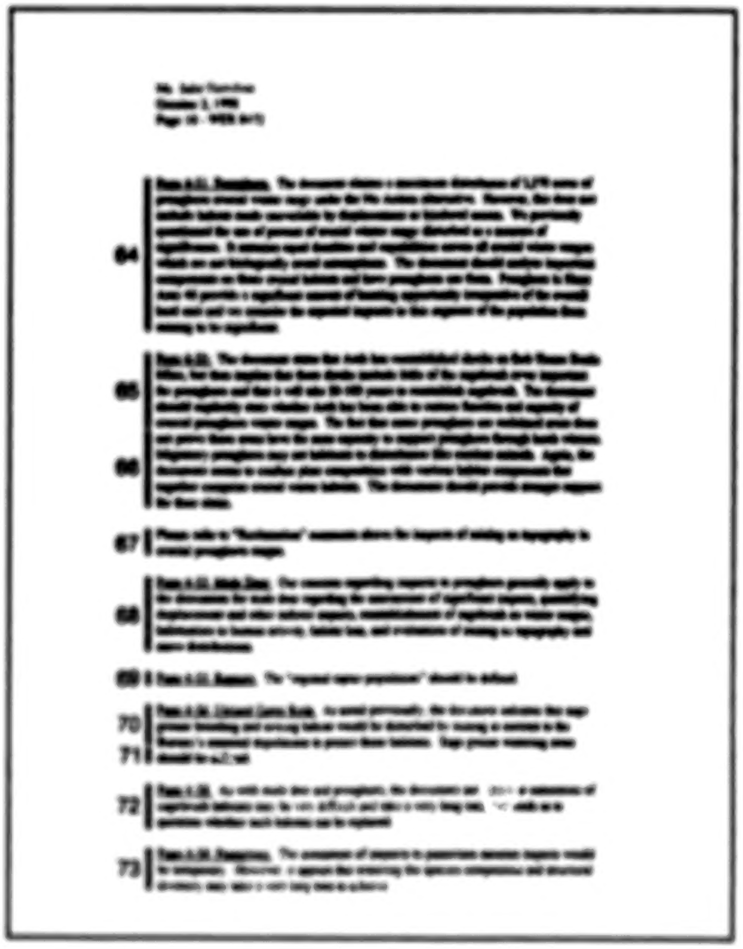
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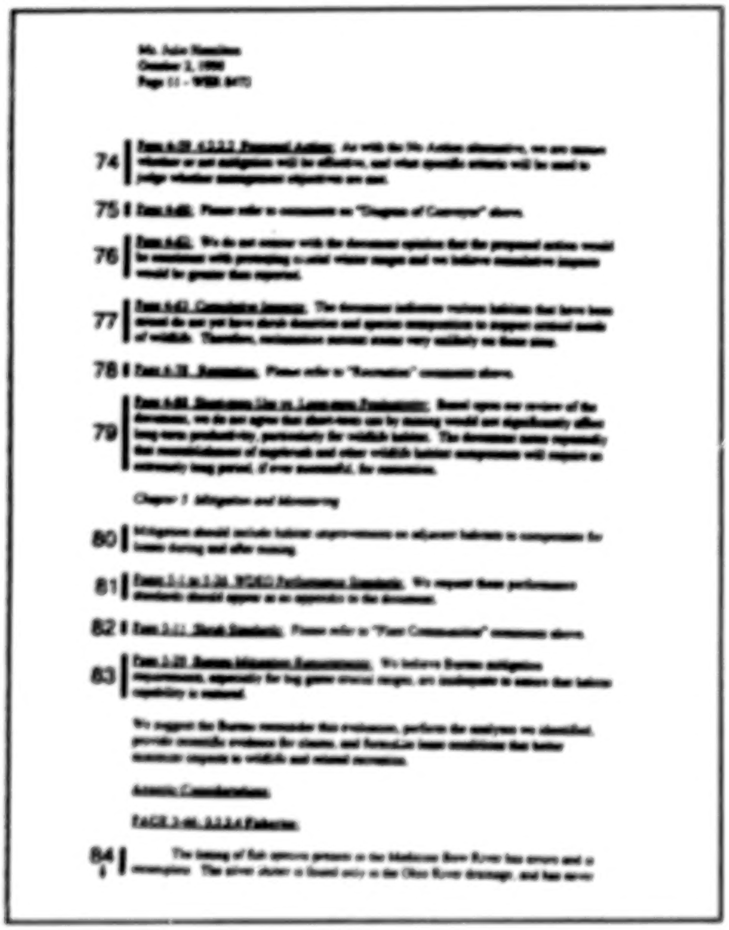

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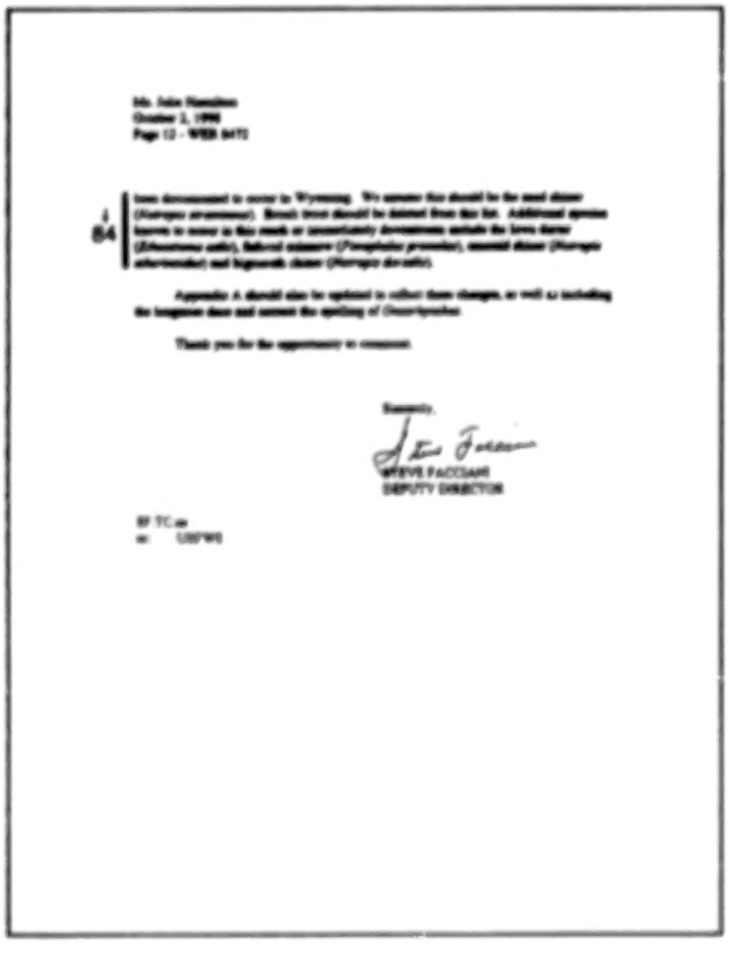

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STEVE FACCIANI
DEPUTY DIRECTOR

Response to Comment J1 - See comment response F2.

Response to Comment J2 - Underground mining could occur without any surface operation; however, surface mining would be necessary to achieve maximum economic recovery of the coal resource, and it is standard industry operating practice to extract surface-minable coal seams first. Both surface- and underground-minable coal are being considered for leasing since private mining is likely and surface minable coal in the scattered federal parcels would not be economical to mine without the intervening private coal. Offering a federal coal lease for underground reserves only would reduce surface disturbance on federal lands by only 397 acres because roads, power lines, and other facilities located on federal lands would be required for the underground operation.

Response to Comment J3 - Section 4.2.2 in the DEIS states that wildlife continue to utilize both undisturbed and reclaimed areas at the Hanna mines and that operators have been successful in re-establishing vegetation at these mines. This evidence is documented in the annual reports the mine operators are required to file with the WDEQ. Mines will not be able to achieve bond release until impacts have been successfully mitigated in accordance with the WDEQ-approved reclamation plan.

Response to Comment J4 - See comment response E19. The assumption that the surrounding habitat was not at maximum carrying capacity for pronghorn and mule deer (and therefore could accept displaced individuals) was based on WGFD data indicating that populations in the herd units were generally less than objective (pronghorn 56% and mule deer 70-100%) indicating that there is additional carrying capacity for these species. No crucial ranges for elk or white-tailed deer would be affected by the No Action or Proposed Action Alternatives.

Response to Comment J5 - For the purposes of leasing, BLM must only determine whether or not the potential impacts of the Proposed Action can be mitigated. If so, there will likely be a determination that impacts from the Proposed Action would not be significant. As part of the performance standards required by WDEQ, vegetation, wildlife, and existing land uses are examined in detail in the mine permit and specific measures and monitoring requirements are identified, including mechanisms to determine if the required mitigation measures would be effective or need adjustment. An annual report submitted by the operator to WDEQ would provide data on the success of mitigation on these resources.

Response to Comment J6 - Text (Section 4.2.2) has been modified to state that wildlife habitat would be one of the postmining land uses. Potential for reestablishment of crucial habitat would be determined during permitting, in consultation with WGFD. The General Environmental Protection Performance Standards, required by the WDEQ (Section 5.1.2.1), states that reclamation shall restore the land to a condition equal to or greater than the "highest previous use." In addition, operators are required to restore wildlife habitat where restoration is possible on the affected land in a "manner commensurate with or superior to habitat which existed before the land became affected." In the event habitat crucial to wildlife has been designated prior to the submittal of a permit application, or in areas of critical habitat, it is standard practice that WGFD "be consulted about, and its approval shall be required for, minimum stocking and planting arrangements of shrubs, including species composition. For areas determined to be important habitat, the WGFD shall be consulted for recommended minimum stocking and planting arrangements of shrubs, including species composition, that may exceed the programmatic standard discussed above." See Section 5.1.2.4.

Response to Comment J7 - See comment response E11.

Response to Comment J8 - BLM concurs that crucial winter ranges provide a variety of habitats such as shelter and forage, and that these habitat elements are available in varying proportions throughout the range. The distribution of these habitat elements will change annually depending on climate (in particular as related to snowfall and snow redistribution). In the absence of finer scale mapping within crucial winter range, the impacts analysis assumed that crucial winter range was, as defined, winter/yearlong range that has been documented as the determining factor in a population's ability to maintain itself at a desired level over the long-term (WGFD n.d.). In considering this definition, impacts to pronghorn and mule deer crucial winter range were determined to be significant in areas where habitat would be removed, something the decision-maker will consider during preparation of the ROD. BLM also concurs that loss of crucial winter range should be avoided, and as stated on page 4-52 in the DEIS, the BLM's management objective is to "protect crucial winter ranges for all big game species." Further, the BLM acknowledges that loss of crucial winter range and overlapping crucial winter ranges would constitute a significant impact. See comment response E18.

Response to Comment J9 - As stated in the *Decision Record for the Environmental Assessment for Coal Planning Decisions in the Carbon Basin Area of the Great Divide Resource Area* (BLM 1998a), application of unsuitability criterion number 15 allows a federal coal lease to be issued if, after consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected. The coal screening process for the Carbon Basin did not identify any areas that would be unacceptable for further consideration for coal leasing and development, with the provision that any lease issued would protect the long-term interests of the species and habitats involved.

As part of the permit application package submitted to WDEQ, baseline vegetation studies would be conducted that would better delineate areas proposed for surface mining that contained crucial habitats (e.g., appropriate sagebrush height and density). If areas are identified that, if mined, would adversely affect the long-term viability of high-interest species, then mitigation would be developed and included in the permit (Appendix D-9) to protect the crucial habitat.

Regulations (43 CFR 3461.1) exempt federal lands with coal deposits that would be mined by underground mining methods from being assessed as unsuitable for coal leasing consideration.

Response to Comment J10 - WDEQ would require mitigation prior to issuing a permit to mine. Some land located outside of the CBCPA, such as certain ROWs, might not be part of the WDEQ permit, and thus their use and reclamation would be subject to surface owner preference.

Response to Comment J11 - Reclamation success studies at the Edison Development Company and Seminoe I Mines are demonstrating that shrub establishment, especially sagebrush, can be successful, with shrub densities meeting and exceeding WDEQ standards. Average shrub density in reclaimed shrublands ranged from slightly less than 2 to 2 shrubs per square meter. However, specific transects and shrub patches contained up to 10 shrubs per square meter, a majority of which was big sagebrush (Intermountain Resources, Inc. 1996), and some of these areas were reclaimed just 12 years ago. In some areas, sagebrush establishment was excessive, almost to the detriment of perennial grasses (personal communication, November 1998, with Jim Orpet, Intermountain Resources, Inc.). Therefore, Arch has demonstrated that good sagebrush establishment can be attained in a relatively short period of time in the Hanna Basin, and success should be similar in the Carbon Basin.

Response to Comment J12 - Amendment of the GDRA RMP to include a decision to consider coal leasing in the Carbon Basin is found on page 1-8 in the DEIS. The Planning Review EA and decision record associated with this amendment are available at the BLM Rawlins Field Office.

Response to Comment J13 - See comment response F2.

Response to Comment J14 - The changes to Ark's original application were made in May 1998 and are included in the DEIS analysis. Lands excluded from Ark Land Company's original application include the S1/2NW1/4NE1/4 and SE1/4NE1/4NW1/4, sec. 12, T.20 N., R.80 W., approximately 30 acres, which were determined to be unsuitable under Criterion No. 16 during the coal screening process (BLM 1997a). Also excluded from the original application was the NW1/4, sec. 28, T.21 N., R.79 W., approximately 160 acres, because no coal resources exist in this tract.

BLM recommended that 1,280 acres, containing approximately 59 million in-place tons of coal, be included in Ark's application to allow a reasonable underground mine plan with enough reserves for a new mine start. These lands are located in sec. 22 and 24, T.21 N., R.80 W.

Response to Comment J15 - State law regulating coal mines requires that if crucial habitats will be disturbed, the WGFD will be notified. WDEQ permit requirements (Sec. 2 (a)(vi)(G)), state that the application must include studies of fish, wildlife, and their habitats in the level of detail as determined by the Administrator, "after consultation with the Wyoming Game and Fish Department in accordance with the Memorandum of Understanding between the two agencies; and Federal agencies having responsibilities for the management or conservation of such environmental values, including: (II)... if crucial or important habitat or migration route is likely, the Wyoming Game and Fish Department shall be contacted by the Administrator."

Response to Comment J16 - Because Highway 72 crosses federal lands, any upgrade to this road that would occur outside the existing roadway would be subject to a new authorization, including a letter of consent from the BLM. Stipulations are placed on the authorization including fencing requirements. These requirements can be found in the Interagency Agreement AA 851-IA2-40 between Department of Transportation and BLM, which allows for negotiations for fencing standards based on the area in which they occur (e.g., crucial winter range). BLM Manual H-1741-1 (Fence Standards) specifies the various heights and spacings appropriate for a given situation.

Response to Comment J17 - Tree loss would be minimized by routing power line and transportation corridors to avoid trees, where feasible. Performance standards (Section 5.1.2.10) state that trees and vegetation may be cleared only for the essential width necessary to maintain slope stability and to serve traffic needs. Loss of trees would be handled in accordance with the WDEQ-approved reclamation plan. Text (Section 4.2.1.1) has been modified to include this information.

Response to Comment J18 - See Section 4.5.1.3 and comment response E22. Text has been added to Section 4.5.1.3 in the FEIS to describe impacts to hunting and recreational activities.

Response to Comment J19 - Text (Section 4.2.2.1) has been modified to discuss effects of topography and snow distribution on crucial winter range.

Response to Comment J20 - "Final reclamation" refers to Arch's commitment to completing the steps outlined in the previous paragraph (i.e., all areas would be graded, top-soiled, seeded, and measures to protect newly seeded areas would be in place) within a 5-year time-frame, if approved by WDEQ as part of the mine permit. This 5-year period does not include the monitoring and bond release phases, which could be an additional 10+ years.

Response to Comment J21 - Fencing is addressed in Section 2.1.3.8.

Response to Comment J22 - Chervik (1991) demonstrated that big game will cross conveyors on overpasses, so this mitigation would be considered adequate until proven ineffective. If the conveyor is chosen as a transportation alternative, Arch would conduct a crossing study, and if additional mitigation is required it would be developed based on study results. This applicant-committed practice has been included in Section 5.4 in the FEIS.

Response to Comment J23 - See comment response F2.

Response to Comment J24 - See comment response J21.

Response to Comment J25 - See comment response J22.

Response to Comment J26 - See comment responses J6 and J20.

Response to Comment J27 - BLM concurs that some wildlife impacts would be significant. State-of-the-art mitigation and reclamation requirements have been attached to the No Action and Proposed Action Alternatives to protect wildlife while fulfilling the purpose and need for the project.

Response to Comment J28 - See comment response J27. All mitigation measures described in Table 2.18 and Chapter 5 in the DEIS would become a part of the lease and the mine permit. The WGFD would be involved in the specific application of mitigation measures during all phases of mine development and operations as required by WDEQ.

Response to Comment J29 - Text has been modified (Sections 4.1.5.1, 4.1.7.1, 4.1.7.2, 4.1.8.1, 4.2.1.1, and 4.2.2.1) to include a discussion about snow redistribution.

Response to Comment J30 - See comment response J19.

Response to Comment J31 - Text (Section 3.2.1.1) has been revised as requested.

Response to Comment J32 - Delineation of, and mitigation for, jurisdictional wetlands would be done during the permitting phase (see comment response D14). In addition, WDEQ performance standards (page 5-23) state that no land within 100 ft of a perennial or intermittent steam will be disturbed by mining operations without authorization.

Response to Comment J33 - Section 3.2.2.1 has been modified to include the listed factors as contributing to the decline of the pronghorn herd. Information from Reeve (1984) and Yeo et al. (1984) has been incorporated, as appropriate, into Section 4.2.2 in the FEIS. See also comment responses J8 and J19.

Response to Comment J34 - Because only a small area of the CBCPA will be mined at any one time and because reclamation will be occurring as soon as possible after disturbance, numerous routes should be available where wildlife can travel through the CBCPA to important habitats south of the area. See also comment response E21.

Response to Comment J35 - Refer to comment response J8.

Response to Comment J36 - Direct and indirect impacts to wildlife are discussed in Section 4.2.2. Figure 3.11 shows the distribution of raptor nests within the CBCPA and shows that most of the nesting habitat occurs along the rock rim on the southern boundary of the disturbance area and in the northern portion of the CBCPA where no surface disturbance would occur.

Response to Comment J37 - See comment responses E21 and J8. Section 3.2.2.1 states that the Sheep Mountain Herd is at 87-100% of objective and is showing a slight increase in numbers. It appears that highway fences, land uses such as oil and gas, and habitat modifications are not significantly affecting the Sheep Mountain Herd.

Response to Comment J38 - Text and Table 3.14 (Section 3.2.2.1) have been modified to include this information.

Response to Comment J39 - Text (Section 3.2.2.1) has been modified as requested.

Response to Comment J40 - Refer to comment response J36. Text (Section 3.2.2.2) has been modified to state that the entire CBCPA is probably suitable raptor nesting habitat. Sections 4.2.2.1 and 4.2.2.2 address loss of potential raptor nesting habitat.

Response to Comment J41 - Cumulative impacts to raptors are discussed in Section 4.2.2.4.

Response to Comment J42 - Approval from WDEQ in consultation with other agency personnel (e.g., WGFD, BLM, USFWS) would be required prior to construction in areas such as sage grouse leks, where federal regulations are applied to protect sensitive resources. This action would allow project activities to proceed in restricted areas and/or during periods of restriction, if deemed appropriate. The amount of sage grouse nesting habitat within the CBCPA is 14,320 acres (see page 3-44). This includes all habitats within 2 mi of leks and therefore presents a worst-case situation.

Response to Comment J43 - All passerine species listed in the most recent report on avian monitoring for the SeaWest Wind Plant (Western EcoSystems Technology, Inc. 1998) are included in Appendix A in the DEIS.

Response to Comment J44 - Although bald eagles likely forage within the CBCPA, no bald eagles were observed in the CBCPA during the wildlife and vegetation baseline surveys which were conducted over several months in 1997 (Intermountain Resources, Inc. 1997).

Response to Comment J45 - As part of the Wildlife Mitigation and Monitoring Plan (Appendix D-9 of the WDEQ permit), Arch would be required to conduct annual wildlife surveys in accordance with Appendix B of the WDEQ *Rules and Regulations* and report all findings in their annual reports. See also comment response E9.

Response to Comment J46 - Refer to comment response J6. Federal land would be available for all FLPMA land uses following coal mining, reclamation, and bond release where legal public access exists or with landowner agreement.

Response to Comment J47 - Oil and gas exploration and development occur within crucial winter ranges to the east of the project. Thirty-one exceptions were granted for oil and gas activity during seasonal restriction periods in 1997. Exceptions are granted only when mild winter conditions enable big game to utilize non-crucial habitats. Furthermore, exceptions allow a limited period of time to accomplish specific activities.

Response to Comment J48 - Refer to comment responses E22 and J18. Text (Section 3.5.3) has been modified to show that only 320 acres of federal land within the CBCPA currently have legal public access. At present, where legal public access exists (i.e., public roads), access is not restricted to public lands in the wind energy project area. Where access has in the past been available, in either the Ledder Land Exchange area or the Ark lands, the lands may continue to be available to the public with landowner permission.

Response to Comment J49 - BLM concurs that habitat value is not immediately or completely replaced by reclamation. Postmining land uses would likely be the same as premine land uses and may include crucial wildlife habitat. As stated in the response to comment J26, Arch would be required to re-establish wildlife habitat as closely as possible to what currently exists. If, during the premine evaluation, it is determined that crucial habitats exist, WDEQ would consult with WGFD to determine appropriate reclamation procedures and standards for areas designated as crucial habitat (page 5-11 of the DEIS).

Response to Comment J50 - Reclamation standards on ROWs granted within the permit boundary would be required to meet the WDEQ reclamation standards presented in Chapter 5.0. If there are any ROWs located on federal lands outside of the permit area, then BLM would require reestablishment of vegetation that supports existing land uses, including wildlife habitat. See comment response J19.

Text (Section 4.2.2.1 in the FEIS) has been modified to state that displacement of animals onto adjacent private lands could increase damage complaints.

Response to Comment J51 - There is some variation in reclamation requirements; however, the reclaimed acres shown on Table 4.1 in the DEIS meet the definition of "reclaimed" for the federal and/or state law in existence when the land was disturbed and reclaimed. All surface mines referred to in this table operate under an approved WDEQ permit and reclamation standards will be met prior to bond release.

Habitat functions may not be fully restored to premine conditions in reclaimed areas, but the reclaimed habitat may be better than premine habitat for some species (e.g., mountain plover) and equivalent or worse for others (e.g., sage grouse). Since restoration of habitat function is species-specific and because these areas are not presently disturbed, they were not included in the disturbance acreage analyzed for cumulative impacts. See comment responses E13 and J11).

Response to Comment J52 - Displacement is described for a number of species in Section 4.2.2. in the DEIS. See comment response J47.

Response to Comment J53 - See response to comment J19.

Response to Comment J54 - Section 5.2.2 in the DEIS states that in areas where substantial subsidence occurs, Arch would be required to backfill, grade, contour, and revegetate these areas to blend in with the topography of the surrounding terrain. Subsidence is monitored and reported as part of required WDEQ annual report submissions. Effects of subsidence on snow distribution as it affects wildlife habitat has been added to Section 4.2.2 in the FEIS.

Response to Comment J55 - Cumulative effects of snow redistribution have been included in Section 4.2.2.1 in the FEIS.

Response to Comment J56 - Refer to comment responses K7 and K49.

Response to Comment J57 - There are no areas designated as crucial winter range in or surrounding the areas where the Hanna mines operate (see Figures 3.7, 3.8, 3.9, and 3.10 in the DEIS). Arch reported in their *1996 Vegetation Study for Final Bond Release* (Intermountain Resource, Inc. 1996a) submitted to WDEQ October 16, 1997, that the average full shrub density was 1.4 shrubs per square meter and the patches formed a mosaic covering 18.6% of the reclaimed surface. This exceeded the WDEQ requirement of one shrub per meter square on 10% of the reclaimed area.

Response to Comment J58 - The management objectives listed in the DEIS were taken from existing federal, state, and county land use plans and are broad-based management goals to guide the decision-making process. These management objectives were used to assess the compatibility of the No Action and Proposed Action Alternatives with federal, state, and county land use plans. Mitigation measures identified in Chapter 5.0 of the DEIS set forth the environmental protection performance standards applicable to all coal mining operations. Site-specific mitigation measures would be included in the WDEQ mine permit and applied, as required, through bond release.

Response to Comment J59 - Text has been added to Section 4.2.2.2 in the FEIS as requested.

Response to Comment J60 - The GDRA RMP crucial winter range and overlapping crucial winter range management objectives listed on page 4-51 in the DEIS apply to the entire resource area and would continue to apply under the multiple-use management that would continue to occur in the CBCPA. The objective statements in the RMP also provide that surface disturbance would be mitigated and that crucial big game range would be reclaimed to the extent possible. The intent of the objective is to fully consider the needs of wildlife and reduce impacts of any action by using all available mitigation measures, appropriate design and development technology, and reclamation measures.

The analysis projects a reduction in crucial winter range over the LOM of 19% and 35% for antelope and mule deer, respectively, within the CBCPA and 0.7% and 1% for antelope and mule deer within their respective herd units. Whether big game animals move away from the mine activity and are out-competed in adjacent winter range or whether the added stress causes mortality in a bad winter, the result is that wildlife would find a slightly reduced amount of habitat on which to overwinter. As a result of this analysis, the conclusion was reached that the loss of habitat function would be a significant impact to the local wildlife population on and adjacent to the CBCPA but not to the entire herd. With proper mitigation and reclamation of disturbed sites (including proper seed mixes), impacts of habitat conversion would be reduced in the long term.

Response to Comment J61 - The GDRA RMP management objective for sage grouse listed on page 4-51 in the DEIS applies to the entire resource area. The intent of the objective is to fully consider the needs of the species and reduce impacts of any action by using all available mitigation measures, appropriate design and development technology, and reclamation measures. The coal-screening process required under 43 CFR 3461.5 requires that project-specific mitigation measures be incorporated to protect the long-term sustainability of the species and habitats involved. The DEIS acknowledges that there would be adverse impacts to sage grouse due to loss of breeding, nesting, and wintering habitat. The loss of an individual lek or leks does not preclude the area from being mined as long as the long-term viability of the species and its habitats are protected. Impacts to sage grouse would be reduced through implementation of mitigation measures identified in Chapter 5.0 in the DEIS.

Response to Comment J62 - Page 4-1 in the DEIS defines long-term as permanent or long-lasting. The 20-100 years required to reestablish sagebrush habitats is a long-term temporary impact.

Response to Comment J63 - Mining activity may cause the displacement of wildlife species to other areas. When animals are displaced, they may find equally suitable habitat that is not occupied by other animals, occupy suitable habitat that is already being used, or occupy poorer habitat than that from which they were displaced. In the second and third situations, displaced animals suffer from increased competition with other animals and/or decreased habitat effectiveness and are therefore less likely to thrive and reproduce. The consequences are often difficult to quantify because other factors such as annual rainfall and snowfall depths influence animal population and mortality. Small less-mobile animals may be less likely to relocate and may by killed during construction and development activities. Populations may be suppressed during the LOM but would be able to repopulate mined areas following reclamation.

There are certain restrictions placed on the BLM that prohibit requiring companies to practice off-site mitigation. Instruction Memorandum No. WY-93-160 refers to policy regarding off-lease compensation mitigation and states that the Regional Solicitor's Office determined that mandatory compensation was a form of "fund-raising" and was beyond the BLM's legal authority. The Solicitor did state that if the money were used "on the lease" where the impacts occurred to enhance habitat for the species affected by the lessee's operation, then the fund would probably be appropriate; however, if the fund were used "off-lease" or for different species than those affected by the action then the fund may be inappropriate.

Response to Comment J64 - The Medicine Bow Herd pronghorn population is at 58% of WGFD's population objective of 45,000 pronghorn (see Table 3.14). If the herd unit can accommodate an additional 20,000 animals, it is likely that there is sufficient adjacent habitat to support pronghorn displaced from the proposed disturbance area. The EIS states that impacts to pronghorn are considered significant at the local level, and it may be appropriate to adjust the herd objective to account for mine-related disturbance.

Response to Comment J65 - See response to comment J57. As stated on page 5-11 in the DEIS, the postmining density, composition, and distribution of shrubs shall be based on site-specific evaluations of premining vegetation and wildlife use. Because none of the Hanna mines have a premine vegetative designation of crucial winter range (the area is considered winter-yearlong range), there has been no requirement to reclaim back to crucial winter range.

Response to Comment J66 - Refer to comment responses J8 and J63.

Response to Comment J67 - Refer to comment response J19.

Response to Comment J68 - Refer to comment responses K8 and K63.

Response to Comment J69 - Text (Section 4.2.2.1 in the FEIS) has been modified to include a definition of the regional raptor population.

Response to Comment J70 - Refer to comment response J61.

Response to Comment J71 - Sage grouse wintering habitat was defined in Sections 3.2.2.2 and 4.2.2. in the DEIS.

Response to Comment J72 - See comment responses J11 and J57.

Response to Comment J73 - See comment response J72.

Response to Comment J74 - See comment response J49.

Response to Comment J75 - See comment response J22.

Response to Comment J76 - See comment response J60.

Response to Comment J77 - See comment response J57. Section 5.1.2.4 in the DEIS states reclamation requirements, including WGFD recommendations for minimum stocking and planting arrangements of shrubs in areas determined to be crucial habitat, must be met prior to bond release.

Response to Comment J78 - See comment response J48.

Response to Comment J79 - See comment response J11.

Response to Comment J80 - See comment response J63.

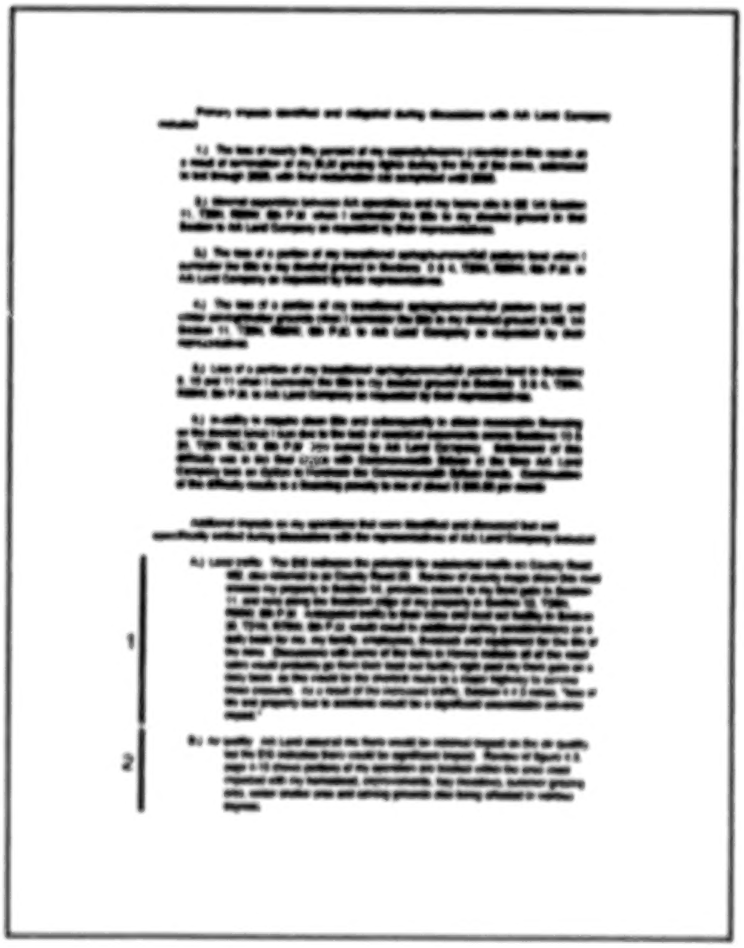
Response to Comment J81 - Many of the requirements of SMCRA, administered by OSM, and state laws regulating surface coal mining (regulated by WDEQ) are intended to ensure that impacts from surface coal mining are minimized or mitigated. Mitigation and monitoring measures required by these and other regulations are considered part of the No Action and Proposed Action Alternatives. Mine-specific mitigation measures would be developed during the mine permitting process, when specific mine plans are submitted. For these reasons, the WDEQ performance standards will remain in Chapter 5.0.

Response to Comment J82 - See comment response J57.

Response to Comment J83 - See comment responses J6 and J49.

Response to Comment J84 - Text (Section 3.2.2.4) and Appendix A have been modified as requested.

K. N/S Livestock Company



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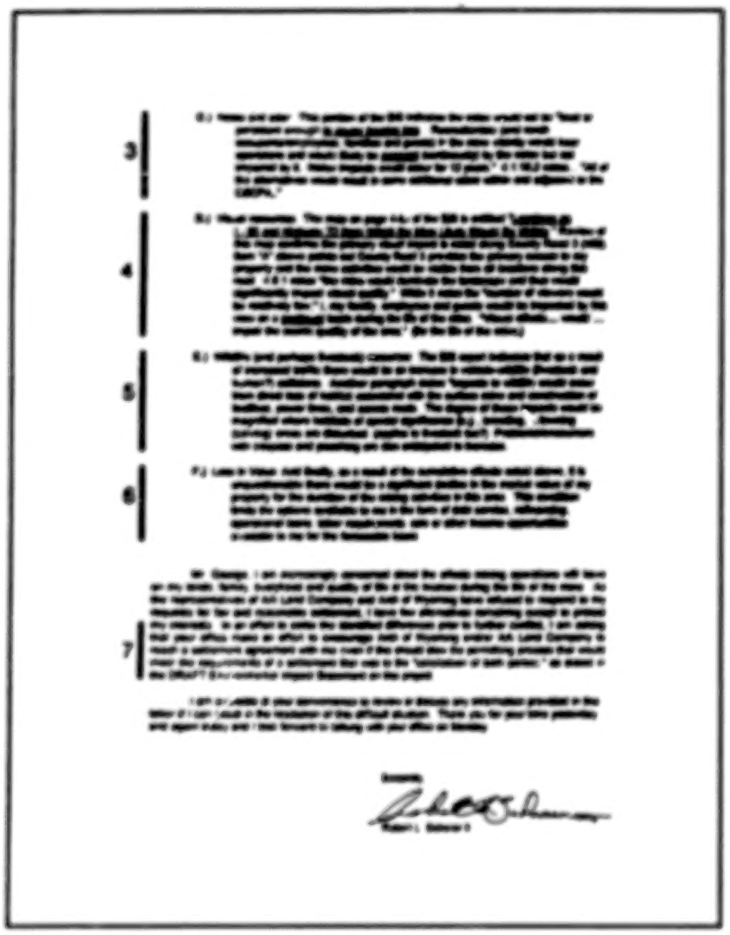
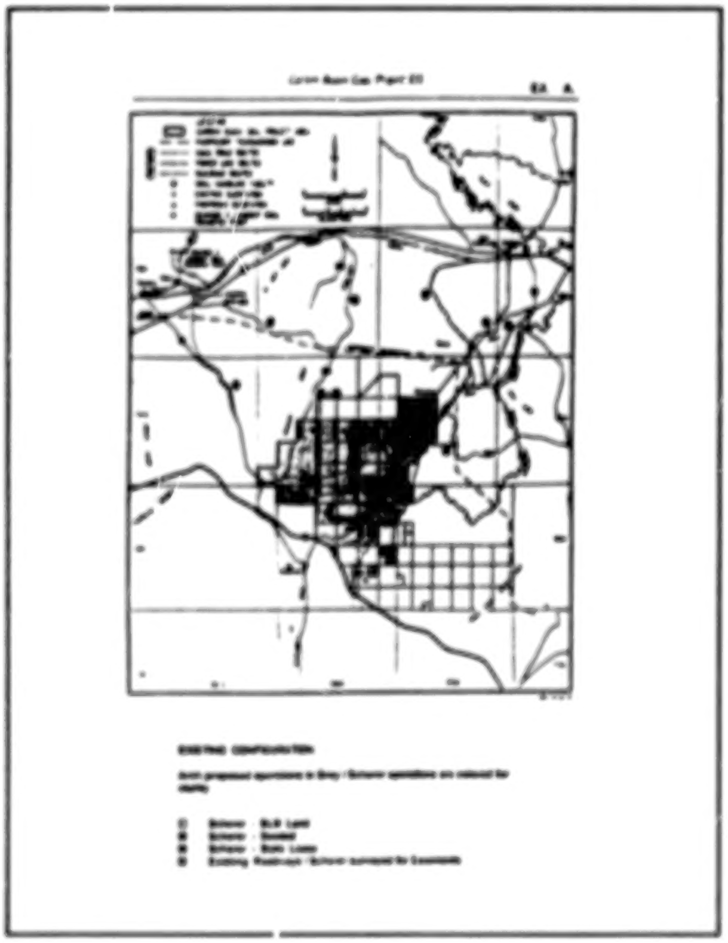




Response to Comment K1 - The DEIS does not indicate a potential for substantial traffic on County Road 3/402. As disclosed in the DEIS, page 2-21, employees residing in Medicine Bow may use County Road 3/402 to commute, but this traffic would turn west into the mine before reaching the N/S Livestock Company ranch. The county road has two characteristics that make it undesirable for hauling coal: 1) the bridge near the junction with I-80 is not adequate to support large trucks and 2) in places, the road is too narrow to allow trucks to pass safely. Hauling coal for local customers requires only 22 trips per day, and upgrading the bridge and the road for this amount of traffic is not economically feasible. Therefore, Arch does not plan to haul coal along this route. Workers and visitors coming from the Laramie area and points east may use County Road 3/402 to access the mine, which would result in a traffic increase past the ranch. However, traffic to and from the mine would be required to comply with all federal and state transportation laws (e.g., adherence to speed limits, vehicle safety features), so the increase is not likely to result in the loss of life or property. Finally, Arch has an excellent safety record for operations in the Hanna Basin. Since 1990, the Medicine Bow Mine has received four awards for having the best safety record of any mine owned and operated by Arch. Arch operates mines nationwide (personal communication, November 1998, with Ed Turner, Arch).

Response to Comment K2 - Please refer to the new text in Section 4.1.2.4 which explains the cumulative effects figures (Figures 4.5 and 4.6) and corrects the statement that cumulative air quality impacts would be significant. Cumulative air quality effects would not be significant.

As stated on page 4-14, maximum particulate matter concentrations would comply with EPA primary and secondary ambient air quality standards at all areas near the mine to which the public can be exposed. Demonstrated compliance with these ambient air quality standards is required before WDEQ and EPA would allow mine construction. Residents near the mine would not be adversely affected by air quality impacts.

Response to Comment K3 - BLM concurs that there would be increased noise and odor in the vicinity of the mine which may be heard/detected at nearby residences, and which given the present relative quiet and fresh air in the area may annoy some people. Since no adverse health effects are anticipated, BLM does not consider this to be a significant impact, but will consider these effects during the decision-making process. The appropriate time to request the addition of specific stipulations such as noise and odor monitors would be during the mine permitting process. Contact OSM and WDEQ for opportunities to be involved during permitting.

Response to Comment K4 - Since the spoil piles/dragline would be a constant visual intrusion during surface mining, impacts to residents of the N/S Livestock Company and Johnson Ranches would be significant.

Response to Comment K5 - The DEIS states that a maximum of 357 AUMs would be unavailable during the LOP. This loss of AUMs was not presented by landownership or by livestock operation. Additional narrative has been added to Section 4.5.2.1 Agriculture/Rangeland that describes the impact of mining on livestock grazing in the North Anschutz Allotment. A maximum of 15 federal AUMs (3% of the federal permit) would be unavailable to the Scherer Ranch in the west pasture of the North Anschutz allotment during the LOM. A maximum of 8 federal AUMs (3.5% of the federal permit in the west pasture) would be unavailable to the Johnson Ranches in the west pasture of the North Anschutz allotment during the LOM. The remainder, and the large majority, of the AUMs would be removed from Ark private property. The ability of the N/S Livestock Company to utilize the federal permit is entirely dependent on the N/S Livestock Company reaching an agreement with Ark to access Ark private properties during the LOM. See comment responses J6, J8, and J27. Direct mortality of livestock is highly unlikely, so this potential impact is not considered significant.

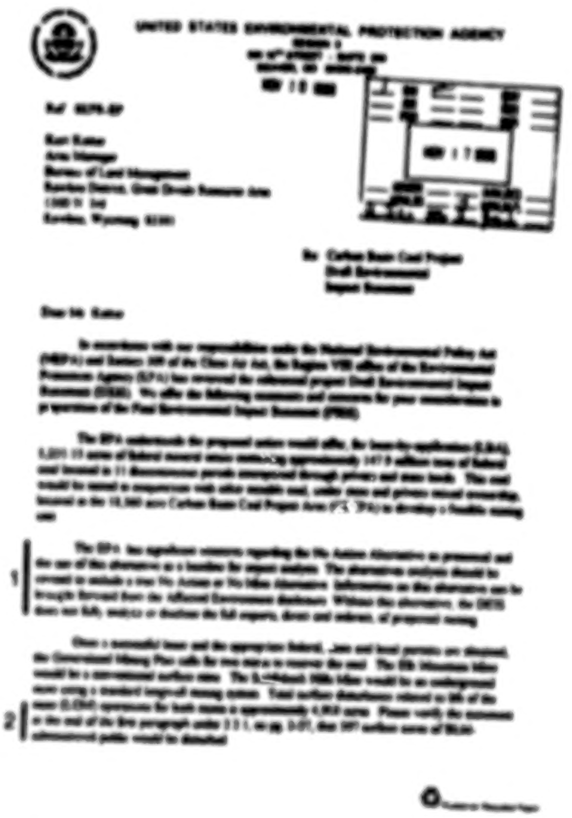
Response to Comment K6 - BLM acknowledges that there may be a decrease in property value at both the N/S Livestock Company and Johnson Ranches during the LOM. This impact would be significant and will be considered as such during the decision-making process.

Response to Comment K7 - As of this time, BLM has no indication from Ark that they intend to preclude livestock grazing on their private lands (See response to K5). BLM does not participate in negotiations between private landowners and potential federal coal lessees regarding private property values and compensation.

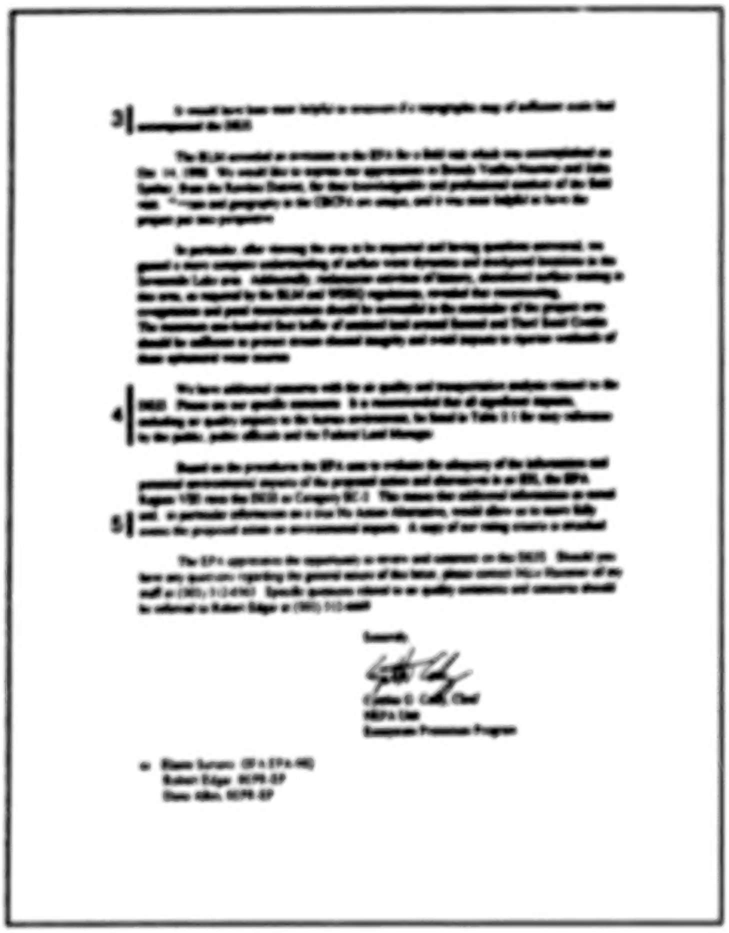
General Response - Thank you for your letter.

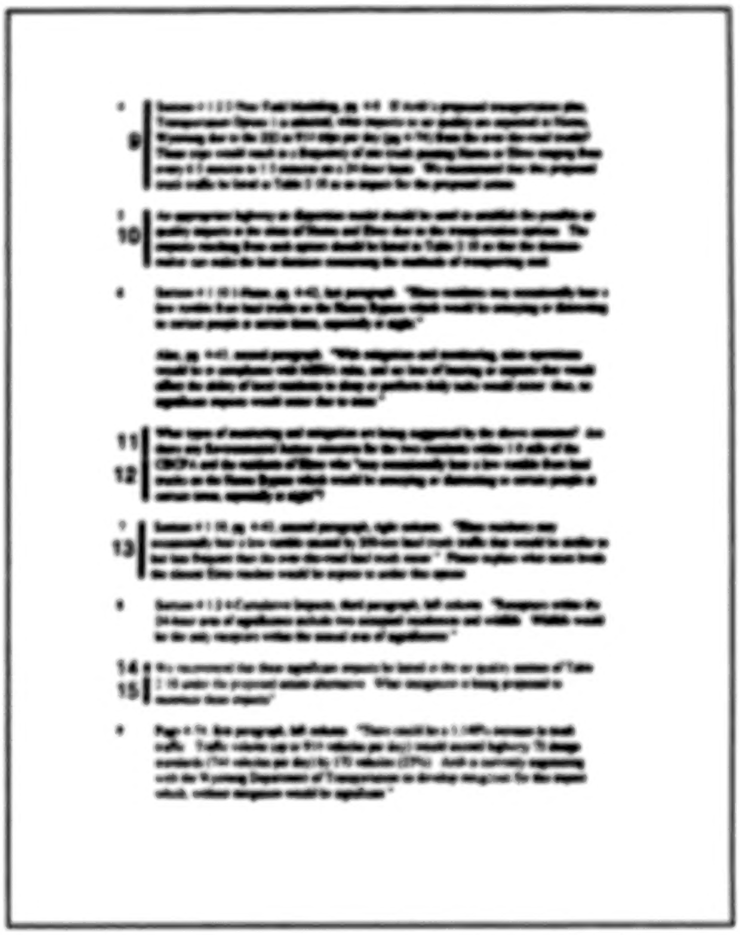
L. Army Corps of Engineers - Wyoming Regulatory Office

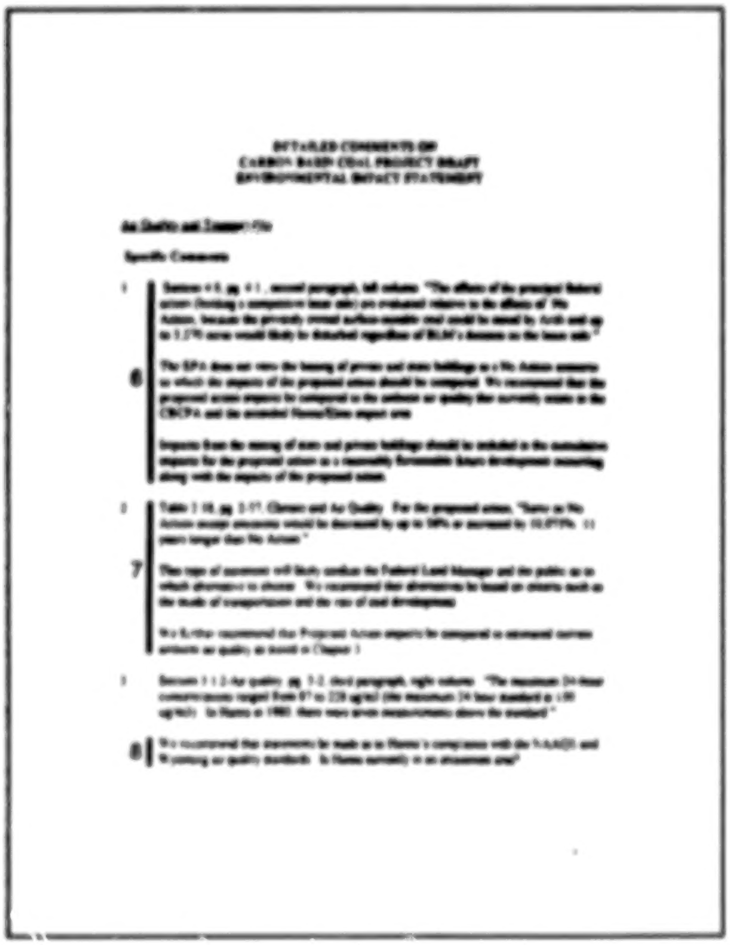
M. Environmental Protection Agency

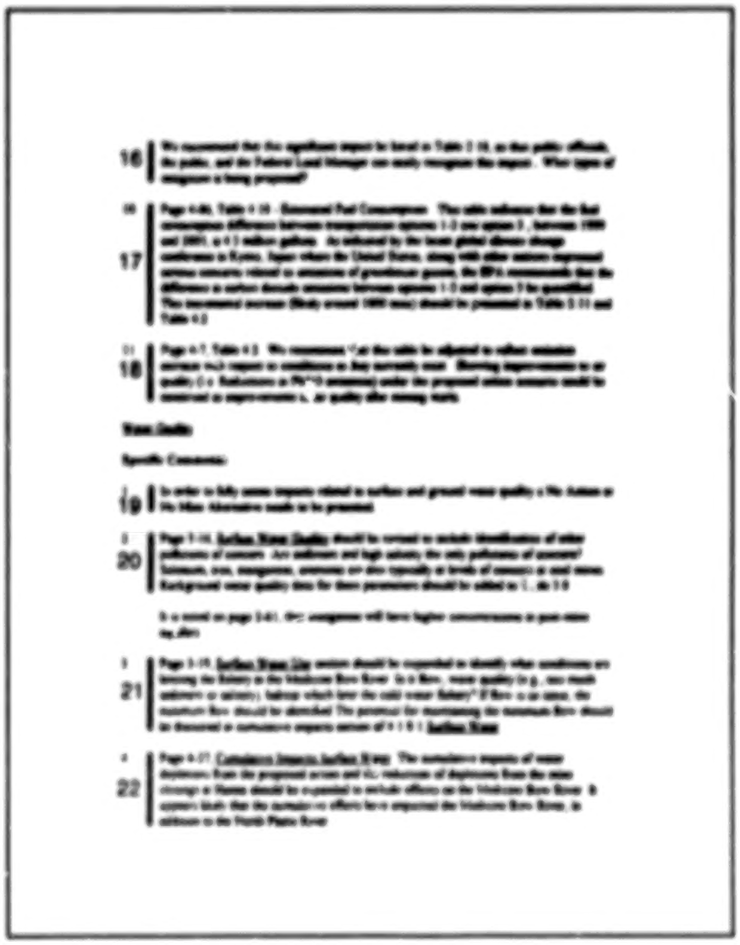


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY









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Response to Comment M1 - See comment response F2.

Response to Comment M2 - Only 397 acres of BLM-administered surface is proposed for disturbance under the Proposed Action. A comparison of Figures 1.3 (Section 1.0 in the DEIS) and 2.9 (Section 2.2.4 in the FEIS) shows the extent of federal surface to be disturbed.

Response to Comment M3 - BLM concurs that a topographic map would be helpful but an 8 1/2 x 11-inch topographic map would add little information relative to the resources that would be impacted. Production of a larger map (e.g., included in a map pocket) would increase EIS reproduction by an estimated $3,000.00 and, again, would not provide much additional information relative to the impacted resources.

Response to Comment M4 - Table 2.18 (Section 2.5 in the FEIS) has been modified to identify all significant impacts.

Response to Comment M5 - See comment response F2.

Response to Comment M6 - Effects of the principal federal action are evaluated relative to the effects of the No Action because the privately owned surface-minable coal could be mined regardless of the federal action. NEPA allows that alternatives and analyses be presented in a form that offers comparison between alternatives. The DEIS also presents or compares each action alternative to the existing baseline presented in Chapter 3.0. The environmental impact tables in Chapter 4.0 (i.e., Table 4.2, 4.10, 4.11, etc., in the DEIS) provide impact estimates for each action alternative in relation to the existing baseline and the narrative provides both comparison between action alternatives (in the form of percent increase or decrease between the No Action and the Proposed Action) and comparison between the action alternatives and the existing baseline.

The Proposed Action air quality impacts were compared to the ambient air quality that currently exists in the CBCPA and the extended Hanna/Elmo impact area (see Section 4.1.2.2 in the DEIS).

It was suggested that the Proposed Action be modified to analyze the impacts of mining just the federal coal, and that impacts from development of state and private holdings should be included in the cumulative impacts as reasonably foreseeable future development. It is technically and economically infeasible to mine only the federal coal because of coal ownership patterns, so the suggested approach is not reasonable because it ignores the connectiveness of the private and federal actions. This approach would require the analysis of direct and indirect impacts of a Proposed Action (the competitive lease, sale, and mining of federal coal) which cannot occur without the development of state and private holdings; thus, it is not a reasonable alternative. See also comment response F2.

Response to Comment M7 - Table 2.18 is a summary table and was not intended to provide information at the same level of detail as the narrative and tables in Chapter 4.0. The air quality narrative in Section 4.1.2 in the DEIS explains these percentages in greater detail. See comment response M6.

Response to Comment M8 - Hanna is currently an attainment area.

Response to Comment M9 - The air quality modeling completed for the DEIS included an assessment of air quality impacts along a segment of Highway 72, with receptors located within 656 ft of the highway (see Section 4.1.2.2 in the DEIS). The town of Elmo is approximately 600 ft from the road to be used for hauling coal, so the modeling would apply to Elmo residents. Text (Section 4.1.2.2 in the DEIS) has been modified to show that pollutant concentrations would be within current WAAQS and NAAQS at 656 ft, so no adverse health effects to Elmo residents are anticipated. Hanna is more than 1 mi from the proposed haul route, so its residents also would not experience any significant impacts.

Response to Comment M10 - See comment response M9. Since modeling was completed for the transportation option with the highest emissions and since results showed that the project would not violate any WAAQS or NAAQS, additional modeling is not required. Other transportation options are expected to have lower emissions.

Response to Comment M11 - Mitigation would include ensuring that all vehicles are properly muffled and in good working order at all times. Monitoring would include periodic inspections by mine maintenance personnel and MSHA inspectors.

Response to Comment M12 - Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, focuses attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Private residences (such as the N/S Livestock Company and Johnson Ranches) do not qualify as minority or low-income populations under Environmental Justice guidance. The residents of Elmo also do not qualify as either minority or low-income populations. Over 50% of the community must be composed of racial, ethnic, or gender-related minorities. Low-income populations are identified using poverty thresholds as definitions. The State of Wyoming has not defined Elmo as either a minority or low-income population or community. See Section 3.4 in the DEIS.

Response to Comment M13 - Estimated 24-hour average noise level at Elmo would be between 37.5 and 45.0 dB; on an hourly basis, noise levels would be between 35.0 and 42.5 dB (personal communication, November 1998, with Jim Brennan, Brown, Buntin, and Associates) which are considered very quiet (see Table 3.11 in the DEIS). Assuming that ambient noise levels are similar to those measured for the KENETECH/PacifiCorp Wind Power project near Arlington (BLM 1995b), ambient noise levels would be in the range of 40 to 61 dB. Therefore, by the time truck noise reaches Elmo, it would have dissipated to lower-than-ambient levels which could be heard (a low rumble) but would not cause significant adverse effects to most people. Some people may find the noise annoying, and this would constitute a significant impact.

Response to Comment M14 - Text (Section 4.1.2.4 in the FEIS) has been modified to correct the statement that cumulative air quality impacts would be significant. Cumulative air quality effects would not be significant.

Response to Comment M15 - No specific mitigation is proposed at this time but it would be instituted at the permitting stage. As stated in Section 4.1.2 in the DEIS, Wyoming air quality control regulations require any new or modified source of air contaminants to obtain a construction permit prior to commencing work. All applicable federal and state air quality permits would be subject to the Best Available Control Technology requirements of PSD regulations. Additional control measures (e.g., chemical dust suppression, temporary vegetation of spoil piles, adherence to speed limits) may be required by WDEQ or OSM during permitting.

Response to Comment M16 - This potentially significant impact has been added to Table 2.18. Mitigation for the potential damage to Highway 72 would include upgrading the road to design standards for the proposed volume and type of traffic expected and/or restricting average daily traffic to the appropriate design standard. Also see comment response J16.

Response to Comment M17 - Table 8.2 shows estimated CO_2 emissions from diesel fuel combustion for the various transportation options.

Response to Comment M18 - Table 8.2 on the next page has been added to show emissions from the Proposed Action relative to baseline conditions.

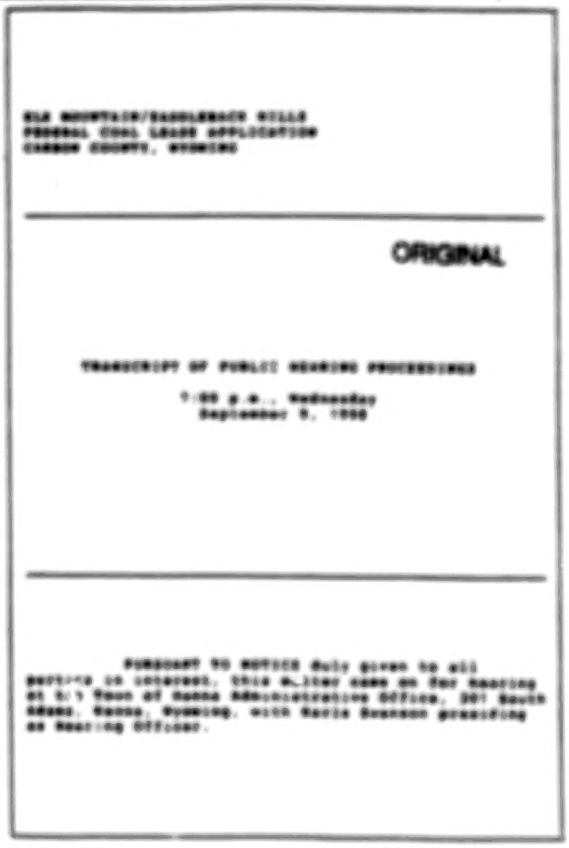
Response to Comment M19 - See comment response F2.

Response to Comment M20 - Minimal surface water quality impacts are anticipated because Arch would be required to contain water in sedimentation/evaporation ponds until water quality meets the requirements of the NPDES permit for the mine. Thus, while BLM concurs that there may be other pollutants of concern, mitigation would occur prior to discharge, such that mine-related activities would not introduce these pollutants into the surface water system.

Response to Comment M21 - Section 3.1.9.1 identifies the cause of water quality impairment in the Medicine Bow River as sediment and silt loading and nutrient enrichment from irrigation and rangeland erosion. However, mine development and operation would not affect surface water quality and would only slightly affect flows into the river. Since potential impacts would be adequately mitigated, no additional analysis is required. A discussion of maintaining the minimum flow in the Medicine Bow River has been added to Section 4.1.8.1 in the FEIS.

Response to Comment M22 - Closure of the Medicine Bow and Seminoe II Mines would allow additional surface water to reach the Medicine Bow and North Platte Rivers and would likely offset the depletions created by the proposed mines. Therefore, cumulative effects on flow in the Medicine Bow and North Platte Rivers are not anticipated.

N. Transcript of Public Hearing



ELK MOUNTAIN/SADDLEBACK HILLS
FEDERAL COAL LEASE APPLICATION
CARBON COUNTY, WYOMING

ORIGINAL

TRANSCRIPT OF PUBLIC HEARING PROCEEDINGS

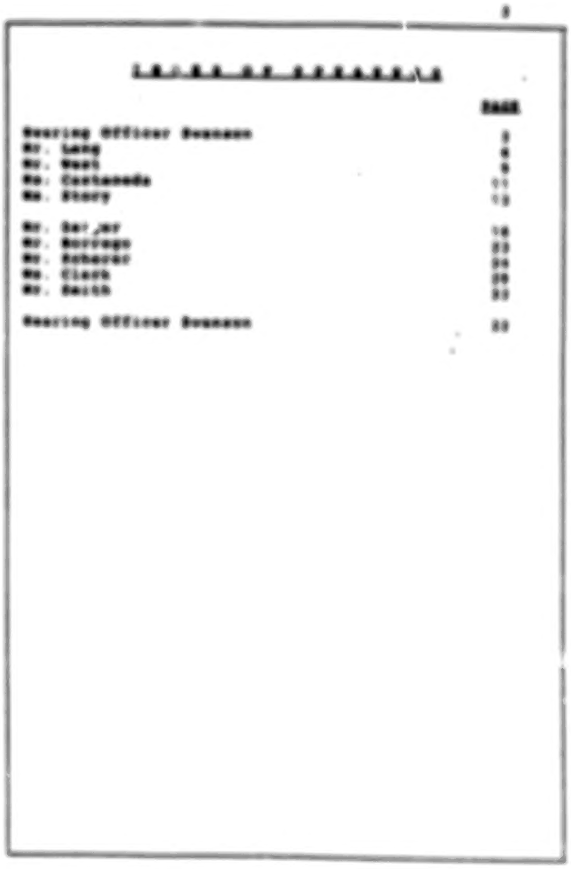


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Table 8.2 Estimated Annual CO_2 Emissions[1] for the No Action Alternative and the Proposed Action.

Year	No Action Mine and Reclamation Operations (lbs CO_2/yr)	No Action Over-the-Road Haulage (lbs CO_2/yr)	Proposed Action Mine and Reclamation Operations (lbs CO_2/yr)	Transportation Option(s) 1-2 (lbs CO_2/yr)	3 (lbs CO_2/yr)	4-6 (lbs CO_2/yr)	7-8 (lbs CO_2/yr)	9 (lbs CO_2/yr)	10 (lbs CO_2/yr)
1999	224	1,007	635	10,069	0	0	0	0	0
2000	14,986	4,344	13,910	50,948	1,121	17,488	0	4,968	0
2001	21,587	8,772	19,840	105,189	2,608	40,691	0	11,560	0
2002	21,863	8,868	21,648	119,157	2,991	46,665	0	13,257	0
2003	22,398	9,051	20,588	108,609	2,702	42,154	0	11,976	0
2004	22,641	8,967	29,594	149,137	3,814	59,492	0	16,901	0
2005	22,881	9,166	29,552	26,872	4,660	10,853	0	20,653	0
2006	22,284	8,954	26,322	5,460	3,957	9,216	0	17,538	0
2007	21,551	8,508	35,366	7,432	5,929	13,806	0	26,274	0
2008	1,336	0	33,853	7,189	5,686	13,241	0	25,198	0
2009	1,427	0	38,802	8,263	6,760	15,743	0	29,960	0
2010	1,638	0	11,380	8,121	6,617	15,410	0	29,327	0
2011	1,112	0	27,806	7,035	5,531	12,882	0	24,514	0
2012	790	0	29,122	7,284	5,781	13,463	0	25,621	0
2013	0	0	28,832	7,284	5,781	13,463	0	25,621	0
2014	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2015	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2016	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2017	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2018	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2019	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2020	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2021	0	0	1,869	0	0	0	0	0	0
2022	0	0	1,632	0	0	0	0	0	0
2023	0	0	1,475	0	0	0	0	0	0
Estimated LOM Total CO_2 Emissions (tons)	176,719	67,637	564,750	217,008	104,409	243,145	0	462,720	0

[1] Based on fuel consumption amounts shown in Table 4.18 in the DEIS. CO_2 emissions from diesel engines were estimated using the formula CO2(lb/hr) = BSFC x hp x lf x 0.87 x 44/12 where BSFC = brake-specific fuel consumption (16/hp-hr); hp = horsepower; lf = operating engine load factor; 0.87 = the carbon fraction of diesel fuel; 44/12 = the molecular weight of CO_2 divided by the molecular weight of carbon. The emission calculations were based on the following assumptions:

Type of Vehicle	BSFC	Horsepower (hp)	Load Factor	Emissions (lb CO_2/hr)	Fuel Consumption (gallons/hr)	Emissions (lb CO_2/hr)
Haul trucks	0.367	400	0.57	267	9	27.8
Locomotives	0.367	1,800	0.63	1,328	32	41.5

PROCEEDINGS

HEARING OFFICER SWANSON: Now we'll start the public hearing.

First of all, has everyone signed in at the door? If you have not, we would appreciate it if you would sign in before you leave tonight. Also, please include your address if you want to be added to the mailing list for this lease application.

I would like to welcome you to this hearing for the Elk Mountain/Saddleback Hills coal lease applications. I'm Earle Swanson, the area manager for the Great Divide Resource Area of the Bureau of Land Management. I'll be the hearing officer this evening.

Sabrina Trevathan is our court reporter this evening. If you wish to make a statement during the hearing, we ask that you come up to the microphone. You can just stand here. It will catch your voice. This will ensure the reporter hears all of the statement, as well as the folks in the audience.

The purpose of this hearing is to accept and record public comments on the Draft Environmental Impact Statement for the Elk Mountain/Saddleback Hills coal lease application. We are also asking the

public to let BLM know if they are aware of any information that BLM should consider in evaluating the fair market value and/or the maximum economic recovery of federal coal from this tract.

By way of background, Ark Land Company of St. Louis, Missouri, filed an application on September 30, 1996, with the BLM to obtain a federal coal lease for 4,145.15 acres of federal coal lands located in the Carbon Basin, about 12 miles southeast of the town of Hanna. Ark Land Company's application was modified by BLM on May 15, 1998, to exclude certain lands due to environmental considerations and to include lands that would allow for a reasonable underground mine plan with enough reserve for a new mine start. The modified application consists of 5,225.15 acres of federal coal lands and contains approximately 150 million tons of in-place federal coal.

The draft Environmental Impact Statement for this application was mailed to the public in August by the BLM. The comment period on the draft Environmental Impact Statement ends on October 6, 1998. Following that, a final Environmental Impact Statement will be completed. All responses received by the end of the public comment period will be

reproduced in the final Environmental Impact Statement. We will accept comments at any time during this process, but we may not be able to consider those comments received after October 6 in the final Environmental Impact Statement. Written comments can be faxed or mailed to Area Manager at the Bureau of Land Management Great Divide Resource Area Office, 1300 North Third Street, P.O. Box 2407 Rawlins, Wyoming 82301. Our fax number is (307) 328-4224. You can also get this information after the meeting. We will also accept written comments tonight.

Before I begin to recognize those of you who have asked to testify, I'd like to set some ground rules. If you have not registered, please do so. If you indicated that you wish to testify when you registered, I will recognize you in the order that you have registered. If you did not indicate that you wish to testify when you registered but decide you want to during the hearing, I will ask for additional comments after all of the registered folks have spoken.

When recognized, please come up to the front of the room, state your name, address, and if you represent someone other than yourself, the name

of that organization. Please speak clearly so that the reporter can hear your remarks. We generally limit testimony to ten minutes to allow everyone a chance to speak; but if we don't have a long list of people who want to testify, we won't hold you to that. Also, if you are testifying from a written statement, if you would give us a copy of your statement, that will help the court reporter in preparing an accurate record.

As a public hearing, this is not a forum for questions or debate. We ask that you not question anyone during their testimony. The reporter or I may need to ask a question for clarification of those who do testify.

We realize that some of you may have questions or items that you want to discuss. After the formal hearing is closed, BLM staff members who are here will be available to answer questions about these applications as well as the coal leasing process in general.

With that, I'll call the first speaker.

Paul Lang.

MR. LANG: My name is Paul Lang, L-A-N-G. I'm the president and general manager of Arch of Wyoming.

Good evening. I think, as most people in this room are aware, Arch has been operating in Hanna for about 30 years now. What we're here tonight to talk about is the Environmental Impact Statement, which is the next step in the mechanism which will allow us to go for the next 30 years.

I think we met in December, 1996, in this room. And at that point, during the scoping meeting, we took public comments on the main concern that the public had with the opening with development of the new mine. You know, clearly, the single greatest concern we heard was the trucking issue. And as Ed pointed out earlier, we are going to truck coal up Highway 72 to our Seminoe Two loadout north of town. Quite frankly, the choice of trucking is not our first choice, either. It is a pure economic choice. We could not afford to develop the mine, the surface mining operation, without -- with the existing facilities we had at Seminoe Two, so we had to resort to trucking.

I think rather than leave that situation at that and kind of almost leave an ultimatum, in the last two years, we've worked with the City of Hanna -- or the Town of Hanna and the Carbon County Commissioners. And we were working on solutions to

minimize the problem with trucking. And I think, as most of you know, about a month ago, that work paid off in that the Town of Hanna received the funding to build the Hanna east bypass bridge, which will allow our coal trucks to miss the town of Hanna and get to our loadout without passing through any populated areas. I think this is a case in point where we actually put our money where our mouth was in that Arch is actually paying for 20 percent of the bridge construction. We've made that commitment to the Town of Hanna regardless of the mine development status.

I guess the point I want to make from this is that, you know, we -- we heard the concerns of the Town of Hanna. And this is a case where we approached it directly and we came up with a solution. You know, we clearly believe this mine is in the best interest of our company. It's also in the best interest of our employees, also. But we also think it's in the best interest of the people of Carbon County. And that's why we're pushing it.

The mine, as with any development of any size, is going to cause change. And it's going to -- it's going to cause concerns, not all of which we can satisfy. The point we want to make is that the issues like the trucking, we'll attempt to address

them directly. If we can, we'll come up with solutions that are best for us and best for the town. And I want to make -- I want to assure people that we'll continue to work with them and make every effort to get the mine in operation as quick as possible, as we talked earlier.

This being the case, we hope to be here for another 30 years. And we appreciate the support and your turnout tonight.

Thank you.

HEARING OFFICER SWANSON: Lenny West.

MR. WEST: Hello. My name is Lenny West. I live in Hanna, Wyoming, and I am an employee of Arch Coal. So I'm speaking on behalf of Arch and myself and, hopefully, everybody in this room.

Well, I've lived in this community since 1954, 1955. When we moved here, there was basically a sawmill outside of town here, which no longer exists, and a small logging operation. That was Hanna. That was Carbon County. Nothing else. The mines had already shut down here. Everybody knew everybody in Hanna. I know most of the people in this room, grew up with them. Sawmills shut down, everybody thought Hanna was done. Rosebud opened up, jobs -- Arch moved in, Ace Development moved in. And

times come, times go. There's good times. There's bad times. It's going to happen. But now we have a chance to continue to live in this community that we want and stay in the area that we chose to live in. This mine offers the opportunity for us to do this.

It's hard to say no to an opportunity. Everybody can say yes, and everybody can say no. It's a personal choice. But if you say no, you know what your other choices are. You have to leave, because there is nothing else in this county that offers a job base, income base for everybody, a tax base for the community, the schools, everything. It's all there is in this town besides the railroad. And we all know that the railroad has difficulties, too. We have to live through them.

Now, my concern with this line, too, was, I don't want to see pull trucks going through Hanna, either. It's a lot of truck they're talking. But they have come up with viable options, just like the temporary route around Hanna for the trucks, the rail spur coming in from Medicine Bow. These are options that we can see and will work if given an opportunity. We have to allow an opportunity in this county; because if you don't give an opportunity, it only knocks once. When it's gone, it's gone.

If you don't want to live here, say so. If you want to live here and make a life here and raise your family and you like it here, give this line a chance, because look at what -- all the opportunities that are available to us. Good income, insurance for people, good health, and good living, plus all the support of the industries that goes with the mine. Suppose they run trucks here. Now look at the trucks. God, there's going to be job opportunities for maintenance. Somebody's got to do it.

There's all kinds of income opportunities available here if we allow it to happen. I don't see how we can pass up this opportunity. It benefits us all. We have to support it.

Thank you.

HEARING OFFICER SWANSON: Deborah Castaneda.

MS. CASTANEDA: My name is Deborah Castaneda, Hanna, Wyoming. I'm the spouse of an employee of Arch.

And as -- Mr. West, you couldn't have said it any better. We need this mine in order to keep Hanna's population, our schools open, our town surviving. As a spouse, I know how important our health coverage is. I know how important our dental

coverage is, and our optical. No other company offers this, not even our good ol' United States military. This is security not only for us but maybe even job security for our children. If this mine opens and we're -- they're here for 30 years, most of the people in this room will have been retired by then. This is something to keep our children here in Wyoming, to keep them from going to California or Texas or Alaska or wherever there is for a job opportunity. Because as it is right now, there really isn't a whole lot to keep our children here. This is an answer for us.

This is also an answer to hopefully have the economy in Hanna grow, because as it is now, they have enough people to make the two mines function. Once they get this open, they will have to bring more people in. That will bring the economy up in Hanna. That will make the real estate market viable. That will make, hopefully, more businesses come into Hanna, possibly even Rawlins, Saratoga, Elk Mountain, which will also bring in more tax revenue, which may get us our streets paved, our sidewalks, things that the town needs, things that the residents need.

I thank you.

HEARING OFFICER SWANSON: Margret

Story.

MS. STORY: Hi. I'm Margret Story, and I'm the town clerk, assistant treasurer for the Town of Hanna. And I'm here to speak tonight on behalf of Bill Coffman, our town mayor. He wanted me to express his regret not being able to attend tonight's meeting, but he is out of town.

He states, An alternative -- an alternate route through the Town of Hanna has been a great concern for many years. Due to the lack of available funding, construction has been prevented in the past. As mayor for the Town of Hanna, I have diligently worked to raise money and support for the second access road.

There are several reasons for the development and support for this second access road and new Elk Mountain mine. The financial benefits to the town, county, and state are numerous. The economic growth and development of Hanna is more likely to increase. And in the future, the closing of the Cyprus Shoshone coal mine will leave Arch to be the primary coal provider and industry employer in our area.

Medicine Bow Coal and Seminoe Two mines currently employ approximately 90 employees. With

the development of the Arch Coal Company Carbon Basin coal project, the second access road through Hanna is also a must. With the increase of coal hauling through the residential areas of the town, there is a definite increase to the risk of accidents and injuries. When coal is hauled from -- when coal was hauled -- hauled from Cyprus, trucks moved an estimated 3,000 tons of coal per week through this town. That is equal to 14 trucks per day or 28 truck passages over the existing overpass.

On August 18, 1997, a coal truck turned over and closed the bridge for over two and a half hours. Fortunately, we did not have any emergency calls during this closure. Health and safety are our top priorities.

Along with 63 percent of the town's residents, the Town of Hanna's volunteer fire department is located on the north side of our bridge. If the overpass were to close for any amount of time, this would not only isolate the residents on the north side of the town but also the fire department, which is responsible for responding to medical emergencies that occur on several miles of interstate and highways. In addition to the volunteer fire department also -- in addition, the volunteer -- the volunteer fire department also responds to medical emergencies and fires in surrounding communities such as Elk Mountain, Medicine Bow, Rock River, and Saratoga. A second access road will allow the department to respond to medical and fire emergencies in their service area if the existing bridge were closed. A second access road will certainly alleviate the above-mentioned concerns.

I am very pleased to hear that our hard work has paid off and that construction should start on the second access road next year. Therefore, the governing body of the Town of Hanna fully supports the development -- development of the north Hanna access road and the new Elk Mountain mine.

Thanks.

HEARING OFFICER SWANSON: Can we have a written copy of those comments now or later?

MS. STORY: You can have this one.

HEARING OFFICER SWANSON: Thank you.

Robert Scherer.

MR. SCHERER: I'd like to pass temporarily.

HEARING OFFICER SWANSON: Okay. Art Seiger.

MR. SEIGER: I don't need that, I don't think.

My name is Art Seiger. I'm one of your county commissioners, and this project is near and dear to my heart. And if I take longer than two minutes to speak, why, please excuse me.

But, nevertheless, I'd like to give you a little background on this situation. Many years ago, six to be exact, a little more -- probably about six, Bill Coffman and I were talking down at the Senior Center. We were both running for election. And he said, We need another access into Hanna. And I said, Yeah; you sure as the world do. And, anyway, so we've been thinking about that for that long. And it took up until -- what? -- two years ago, about that, maybe -- no, a little less than that -- before we could come up with something.

And the biggest thing that brought this all about was the Carbon Basin mine, this mine out here that you guys are going to get and you need very much and I'm tickled to death that you are, for more reasons than one. Being a county commissioner, I really do appreciate the extra tax base. Like I told Union Pacific one time -- they wanted to build some wells out by Wamsutter, just this side of Wamsutter.

And I said, Drill the wells, sell the gas, and pay your taxes. And that's what I mean.

But, nevertheless, let's get back to it a little bit. To give you some background on this -- this road -- and that's what I know. I don't know anything about mining. I'm going to leave that to Eddie and Paul. But I know something about roads and bridges. And we -- we did -- Eddie and Bill Coffman and myself and --

Was Paul with us that first go-around? I don't know. Was he?

MR. TURNER: Yeah.

MR. SEIGER: We were appealing to the Benton (phonetic) Mine Lands Program. Do you all know what that is? Of course you don't, not all of you, anyway. But, anyway, for every ton of coal that's being taken out of the Hanna basin, you pay kind of a surtax on it that goes to the federal government. Half of it is supposed to go back to this county -- this state. I'm sorry. And as it -- well, it don't. We get 25 percent of it back, and they keep the other half -- the other 25 percent, back in Washington, D.C., to balance the budget. Now, we would like very much to have that 25 percent back in the state, and we're working hard to get it

that way, but that hasn't happened yet.

But, nevertheless, we saw an opportunity, with this new mine out here, to build an overpass -- overpass over here -- what is it? -- about a mile and a half east of Hanna, something like that, just the other side of Elmo a little ways, so that the dust and the traffic and everything is away from here and away from Elmo. So Arch put up 340- -- $340,000. The County put up $360,000. We finagled the Highway Department into $400,000. And I think the balance is the AML. And it's going to run just around $2 million to do that project. But if it keeps one person from getting hurt, it's well, well worth the 2 million bucks.

And I want to give this as a little aside, because I was accused by -- jokingly by some of the people down in Cheyenne that I engineered that truck turnover on this. And I told them -- I said, Don't you fret; if I could have done it, I damned sure would have.

But, anyway, you owe -- you owe this bridge to Eddie and Bill and Paul.

Where are you, Paul? Did he --

Well, anyway, this -- this is a -- when I took an oath -- when I became a county commissioner, I took an oath to protect, to the best of my ability, the health, safety, and welfare of the citizens of Carbon County. And I take that very seriously. And this -- if this new road and bridge isn't a health, safety, and welfare thing, I don't know what in the world is, because perhaps -- I know all of you know your emergency services are both located on the north side of the tracks. And you service -- where's Dick Gregory? Is he here?

Anyway, you service all of I-80 from the Laramie -- or the Albany County line to Walcott Junction. If you have a wreck out there, this ambulance is going to service you out there. And me, too. And anybody else that's on that road out there. So Hanna plays an important part in the health, safety, and welfare of the people in this vicinity. And it's a huge -- Dick said 8,000 square miles -- no, no, not that much. 3,000.

MR. TURNER: The state of Delaware or something like that.

MR. SEIGER: Yeah, about the state of Delaware. A long ways.

Your ambulance and fire service is really something in this town, whether you know it or not. You should know it. But it's all on the north side

of the tracks. And I tell you, if something happens to this overpass -- and you all know that, too, but I'm going to reiterate that. If something does happen there, like a train wreck underneath it and -- they had a train pileup here not too long ago back there. And one of the cars was higher than the overpass, which would have bumped that overpass up just like that. You would have been shut down. That's the reason we want another overpass over here. That's the reason. And because of this new mine out here, that's going to come to pass. We got her. It's going to happen.

There's two little things we got to do yet -- not little. But we got to get the -- we got to get the land from the Union Pacific Resources, and we got to get the flagging for the -- when we put the bridge across. Both of those things, we'd like awful well if the Union Pacific would just kind of donate them. But I don't know whether we can get that done or not. But, nevertheless -- nevertheless, we're going to try to do that. And if -- if it don't happen, we'll have to do something else. But I'm sure that the Union Pacific will work with us. They have. And after we finally --

Should I tell them, Eddie, what we had to

do to get this?

Anyway, when we first -- when you first applied for this, we were turned down and -- by the AML people. They said -- I'm not going to say that. I won't -- I won't say that anymore. But we were turned down. I'm not going to give you the reason we were turned down, because the gentleman that gave us the reason became very ill. And I think it would be very unfair to him if I said anything like that.

But, nevertheless, we were turned down. So we came back, and we got together and decided that we weren't going to let it drop. We -- so we got interviews with all of the elected officials, the governor and all of them. There's five of them. And so we -- we didn't get to see the governor that day, did we? But we got to see his secretary and everything. So we got it all done. And the upshot of the whole thing -- we badgered them, I guess you might say, long enough and hard enough -- I guess we better call it lobbying. I think that's probably a better word. Anyway, so we got it done. The governor was the one that suggested getting the $400,000 from the Highway Department. Department of Transportation they're called now, but you all know them as the Highway Department. So that was the way

it worked. You owe it to Eddie, and you owe it to Bill Coffman.

And, Paul, did you leave? He did.

Well, anyway, Arch played a very big part. They're going to play a very big part in your economy here. And I hope you real- -- well, from what I've heard tonight, I know you realize that. But it's not only just Hanna. It is Carbon County. And I like to think of myself as being a commissioner from the whole county, not just -- just because I live in Saratoga doesn't mean I don't have your folks at -- at heart. I do. And I'll continue to do that. That is if I'm reelected.

Hey, I can say that, can't I?

HEARING OFFICER SWANSON: You have two more minutes.

MR. SEIGER: Anyway, I guess that's about all I have to say, unless Eddie would like to pick me up somewhere.

MR. TURNER: Doing good.

MR. SEIGER: He's been with us every time. And thank God he was, because he's a good source of information.

And, like I said, it's going to be a $3 million project, a little bit more than 3, 3.1, something like that and -- but the funding is in place. It's going to happen. Eddie says he's going to be hauling coal across that bridge by 2000.

So I guess that's all I have to say. See ya.

HEARING OFFICER SWANSON: Johnnie Borrego.

MR. BORREGO: Johnnie Borrego or Rudy Borrego.

I was born and raised here in Hanna. And I'd like to see -- I work for Arch, and I'd like to see my career continue on until I retire here. Like I said, I was born and raised here. And I would like to continue my life here. And most of the comments of, you know, from Hanna and that -- that's all I got to say. I just want it to continue.

Thank you.

HEARING OFFICER SWANSON: Robert Scherer, did you want to speak now?

MR. SCHERER: No. I'll hold.

HEARING OFFICER SWANSON: Okay. Are there others who would like to offer testimony this evening?

This may be your chance, Robert. Are you still holding?

MR. SCHERER: I'm Bob Scherer, and I represent myself.

HEARING OFFICER SWANSON: And your address, please.

MR. SCHERER: P.O. Box 2457, Laramie.

I'm Bob Scherer. And I have a very small ranch operation out at Elk Mountain. And I have listened and followed this process with Arch for about four years or five years.

And I can start off this presentation by saying I understand all of the issues that you folks have talked about. I understand all of the things that are of interest to you. And I, too, support the mine operation. I don't have any real problems with the whole concept, and it's a total benefit to everybody. I've listened to the -- this tonight and over this time period, the health and safety issues, concerns about employment, the quality of life, the economic benefits, the second access on the east side of Hanna, and those elements that -- and steps that have been taken to protect the interests and the benefits of these people here in Hanna. And I support that.

I have another concern, though, which is very specific to me. I'll reference this map to

start with in that the blue line represents the Arch Mineral mine grouping. And way down here in the corner, there's part of Section 11, which includes part of my ranch operation. My home is located right here. It's -- I can reference a map for those of you who brought your statement. There are two residences listed. One of them is mine, right here. The other one is the Johnson Ranch. And the Johnson Ranch is owned by Arch Mineral, and that property is leased back to those people. So they have the ability to get away as the mine operations develop. I, on the other hand, have no opportunity for that. And that's my concern about this and what I hope to see addressed in the final Environmental Impact Statement.

I asked for guidance about two and a half years ago. I reached an agreement with Arch Mineral about two years ago. I had -- had communicated with the folks at Commonwealth Eddison up until the Arch purchase. Agreements were in place. And those elements were bypassed by Arch Mineral, and nothing has been addressed.

So while I understand your concerns of employment and safety and all of those elements, there is one element that's drastically missing in

this Environmental Impact Statement. They have identified, here in the red, their operation, loadout area, transfer station. They've planned the road back up to Hanna. I don't have any difficulty with any of that. But what they failed to address is the traffic that's on County Road 402. And it's -- it's alternately discussed in the document as County Road 3 and County Road 402.

It's pretty obvious to me that if this is the main road that's going to transfer through here, there's going to be a tremendous amount of traffic there, tremendous amount of truck traffic, car traffic. You can go up and down the line. Passenger vehicles, vans, fuel trucks, everything in the world is going to be running up and down that road, as I understand it. And while Hanna has been able to address the issue of the second access by a road over there on the east end, I have no escape. I have no ability to get away from it. Their mine plan puts this road -- and they don't show it on this map. We can see it right here. It comes down here, turns right here on the south edge. This little tiny blue line -- it would be this corner right here. That's my front door.

So while you may live on the eastern side

1 of Hanna and you were concerned about the trucks and traffic and the noise and the pollutants through here, or you lived on the east side and you were less concerned about it, by establishment of the second access, you folks were able to escape that. I can't escape it.

2 My concerns deal with the traffic by the front door, the noise, the constant noise.. As you read the -- the Environmental Impact Statement, it says there is a 24-hour constant noise factor that I will be dealing with. That will impact not only myself and my family as we begin to -- to realize the impacts of that but also the production of any animals.

So mine is a mere voice of one crying in the desert. I support the mine. I understand its economic benefits. But I need to find a way to work with Arch in order to mitigate some of these -- some of these problems.

Additional concerns that I have, as do both people on the -- and there's essentially three residences. There's one down about in here on the river, there's this one, and there's this one. And while we don't have the economics to do the studies, we're going to be dealing with significant issues of

3 vandalism, theft, trespass, poaching, things that you're not going to deal with in your front yard.

4 Another element that I'm going to be dealing with is a loss in value of the property for what time period? 20 years? 30 years? 40 years?

5 Probably beyond my existence. And, ultimately, the loss of part of my operation. The BLM portion was discussed. The allotment for my summer grounds is out here. And most of that will be lost during the life of the mine.

All of these issues were addressed with Arch prior to the presentation and application of their mine permit. Everything had been agreed upon, and Arch walked away from the table. I would like to find some -- some direction, some encouragement for Arch to come back to the table and reach some mitigation; because as you folks have been able to address the issue, you addressed the concern of the health and the safety, employment. Everything is in place. It seems like a good plan, and I support it. These folks are right in my front yard. And I have no ability to escape from them. And I hope, in their final Environmental Impact Statement, they can address those issues, those concerns, and ways that those things can be mitigated for me.

Thank you.

HEARING OFFICER [illegible]: Again, would anyone else like to testify this evening?

Come on up.

MS. CLARK: Rita Clark, citizen of Hanna -- or Elmo. I didn't expect to speak, so I'm a little nervous.

Anyway, what I wanted to say was that I'm a recent homeowner in Elmo; in fact, the east side of Elmo. And I have these similar concerns to the last speaker as far as noise and trucks and things like that. I've discussed them in detail with a friend of mine, who happens to be the mayor of Hanna.

And I guess my point tonight is, we are a community. I lived in Chicago for years, moved to Laramie ten years ago, eleven years ago, got out of Laramie because of the traffic, coincidentally, and have been in Hanna on and off since '90, working in the coal industry. It's suited me very well. It's paid me very well. It's very hard to be paid very well and be female in the state of Wyoming. So I'm very interested in this mine going, particularly the underground portion of it, as the mine I work for is going to be done in the underground portion.

So while I empathize with isolated concerns

of ranchers and/or landowners, I would like to remind people that when you buy surface property, you do not buy the mineral rights in every instance. And in most instances, you need to be aware of who owns your minerals. And as the BLM stated, this entire area here has, in the past, and, evidently, is going to be now, slated for coal mining.

This is our coal mining community. So while trucks may inconvenience me for the first, you know, two weeks or so while I hear them, while I may get a little dust in my windows, running noise and running trucks means guys work. And it really is that simple. So I would caution you to think as a community and to act as a community. And there's always going to be isolated instances that are not happy with or not workable. And nobody knows the details of those instances. But, you know, you are a community, and you're one that I've just come to less than eight -- you know, eight years ago.

I had lots of opportunities in Chicago. I wouldn't go back if you paid me. I wouldn't go to Laramie if you paid me. So there's something here, and it's -- you get acclimated to it. And I really think people know this who live here. And I'm hoping Carbon County knows it. But keep in mind that while there are barriers -- and they've just broke through this bridge thing -- and, you know, we owe, certainly, Mayor Coffman and Mr. Geiger here for their help on that, and Arch.

I would just like to say one of the things that Hanna and Elmo -- I'd like to consider myself in Elmo, little bedroom community of Hanna, that -- I did just buy a house. I mean, I'm really hoping for this. And I'm not, you know, silly with my money. So I think you need to respect your community influence. And that extends to Elk Mountain, to Saratoga, to Rawlins.

And while there are isolated instances that may have problems that need to be worked out, I think Arch has been very proactive in working those problems out. And I think people here who work for Arch and the other mining companies know the relationships with ranchers, including grazing and other situations that go on. So just please keep that in mind.

I just felt that something along those lines needed to be said, perhaps, last, after that previous comment.

HEARING OFFICER SWANSON: Are there others who would like to offer testimony this

evening?

MR. SMITH: My name is Howard Smith. I'm from Medicine Bow. I don't work for the coal mines, but I do have property in Medicine Bow.

And, personally, I hear you people talking about why you want to bring that coal into Hanna when the mines is all out south here. And there is a loadout -- there used to be an old railroad spur into Carbon. And, to me, that looked like the logical place to load that coal is at Carbon, rather than truck it into Hanna and tearing up your roads in here and tearing up all your people's lawns and coming in here with coal trucks. You got a good spur out there. And it wouldn't take the railroad just a little bit to -- the spur is already there. The roadbed is there. And it wouldn't take too much to build it up. And you could build a road -- loadout place there, haul your coal right in there. And you'd get away from all this here hassle about bringing the coal into town here.

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That's my two cents' worth.

Thank you.

HEARING OFFICER SWANSON: Are there others who would like to offer tes- -- offer testimony this evening?

Again, would anybody else like to offer testimony this evening?

If there is no one else who would like to speak, then I will officially close this hearing.

Thank you for coming.

(The hearing proceedings were concluded at 7:45 p.m., September 9, 1998.)

C E R T I F I C A T E

I, SABRINA TREVATHAN, a Registered Professional Reporter, do hereby certify that the foregoing 33 pages constitutes a full, true, complete, and correct transcript of the proceedings in the above-entitled hearing.

Dated this 18th day of September, 1998.

SABRINA TREVATHAN
Registered Professional Reporter

General Response - Thank you for taking the time to review the DEIS and providing your comments.

Response to Comment N1 - See response to comment K1.

Response to Comment N2 - See response to comment K3.

Response to Comment N3 - We assume that your reference to vandalism, theft, trespass, and poaching would be due to the additional people in the vicinity of your ranch during mine development and operation. Most of the people who would be working at the mine are presently employed by Arch and have been working at the Seminoe II or Medicine Bow mines and are residents of Hanna. It is difficult to imagine that these neighbors would commit any of the acts you mentioned. Mine workers that are not long-time Arch employees or nearby residents are expected to be professionals in their trades, at the mine site solely to work, and not willing to risk their jobs for these types of misdemeanors.

Response to Comment N4 - See comment response K6.

Response to Comment N5 - See comment response K5.

Response to Comment N6 - The main reason for transporting coal through Hanna would be to utilize the loadout facility at the Seminoe II Mine once surface mining begins in the CBCPA. However, the Seminoe II loadout, in its present form, would not be adequate for the expected coal production levels once the underground mine becomes operational, so a new facility is proposed for construction in the CBCPA. Constructing a rail spur for only 5 years of use would likely be uneconomical. However, because no decision will be made at this time as to the method of coal transportation to the Seminoe II loadout, Arch could consider your proposal and apply for a BLM ROW grant if federal lands are involved. The ROW would not be granted until appropriate NEPA documentation is completed. If only private land is involved, arrangements would have to be made with private landowners and applicable state permits would have to be obtained.

APPENDIX A:

ANIMAL SPECIES LIST

Appendix A, page A-11, Fish. Add "Sand shiner/*Notropis stramineus*, Iowa darter/*Etheostoma exile*, Fathead minnow/*Pimephales promelas*, Emerald shiner/*Notropis antherinoides*, Bigmouth shiner/*Notropis dorsalis*, Longnose dace/*Rhinichthys cataractae*". Delete "Silver shiner/*Notropis photogenis*, Brook trout/*Salvelinus fontinalis*." Change "*Oncorynchus*" to "*Onchorhynchus*".

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END

03-5-99